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With Which Is Combined

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Superintendents Hold Convention At Buffalo

William Brydges, of the Bedford Pulp and Paper Co., Big Island, Va., Is Elected President at the Thirteenth Annual Meeting of the American Pulp and Paper Mill Superintendents at the Statler Hotel, June 2-4—Many Papers on Timely and Important Topics Are Read and Discussed—The Exhibits and Those Who Attended

[FROM OUR SPECIAL REPRESENTATIVE]

BUFFALO, N. Y., June 4, 1932—The thirteenth annual convention of the American Pulp and Paper Mill Superintendents Association, Incorporated, which convened in a three days' session at the Hotel Statler, Buffalo, N. Y., June 2-3-4, was in many respects one of the most important meetings of the Association. The present problems were faced squarely, and a cooperative spirit of unity of purpose in the solution of existing difficulties was the predominating factor throughout the successful and highly informative session, the slogan of which was, "Progress."

The members of the committee are to be commended most highly for their splendid work in arranging a program of exceptional quality, from the well balanced papers presented at the meeting—through the many forms of diversified and extremely interesting entertainment, to the minute details of little courtesies which mean so much. The committee was composed of Fred J. Rooney, chairman; Robert C. Rooney, secretary; F. D. Bowman; B. D. Millidge; C. F. Nostrant; Robt. W. Price; John Nolan; J. R. Hoover.

First Session Opened by Fred J. Rooney

The first session on Thursday morning was opened by Fred J. Rooney, general chairman. After an address of welcome by Louis Hemafelt, secretary to the Mayor of Buffalo, and a response by Fred C. Boyce, the chairman introduced Rev. Raymond A. Kutz, who delivered the invocation and a memoriam for the members who had passed away during the past year.

"Our definite purpose is the mutual exchange of ideas, the review of wreckage of the past two years, and the planning of future progress," Roy H. Kelley, president, said in his address to the delegates.

He urged cooperation of all superintendents and of all departments in all mills as a certain help for many of the evils of the day.

Mr. Kelley also pointed out that the association has offered to act as an employment agency for any mill in the United States or Canada—whether or not it holds membership.

Papers Presented Thursday Morning

At this session, the following papers were read:

"Micarta in the Paper Mill Field," Stephen A. Staege, industrial engineer, Westinghouse Electric and Manufacturing Company.

"The Downington Extractor for Cylinder Machines," C. H. R. Johnson, Downington Manufacturing Company.

An intensely interesting discussion followed the reading of these papers.

At the joint luncheon a very enjoyable entertainment was provided for the guests.

Thursday Afternoon Session

In the afternoon session the following papers were read:

"Late Improvements in the Design of Paper Making Equipment," P. M. Foster, Beloit Iron Works.

"Relation Between the Technical Department and the Operating Department," Dr. W. H. Charch, Associate Chemical Director, DuPont Cellophane Company.

"Depreciation and Obsolescence in Pulp and Paper Mills," Joseph H. Wallace, Black-Clawson Company.

In the early evening the guests enjoyed a well selected program of musical numbers presented by the Carborundum Band of fifty pieces. This was broadcast over the Columbia Network, and announced by Francis D. Bowman, Carborundum Company, who also acted as master of ceremonies, and demonstrated his dexterity with the baton by directing the band in the two final numbers.

Group Arrangement

Pursuing the same Group Dinner arrangement which was inaugurated at the last convention, the various groups were divided as follows:

Board Group

Lee Wilson, Chairman—Georgian Room.

"New Vat," J. A. Hamm, Shartle Brothers Machine Company.

"Questionnaire," led by Chairman Wilson.

"The Advantages and Savings Offered by the Enterprise Compensating Drive," Tom Harvey, Enterprise Machine Company.

"Possibilities of Automatic Operation," Melvin R. Ware.

Book and Fine Paper

Chas. Champion, Chairman—Iroquois Room.

"Paper Permanency," B. L. Wemhoff, Bureau of Standards.

"Products and Equipment Standardized and Improved by Use of Chromium," A. F. Francis, Chromium Corp. of America.

"Delthirna Sizing," C. H. Kent, Mansefield, Bolton & Kent.

Groundwood

Wm. Brydges, Chairman—Parlor B.

"Maximum Production of High Quality Product at Minimum Cost," C. D. DeMers, Taylor Instrument Company.

"The Aloxite Brand Pulpwheel," A. L. Ball, Research Engineer, The Carborundum Company.

"Progress in the Manufacture and Control of Groundwood," A. T. Gardner, Appleton, Wis.

Sulphite

Morris W. Hedden, Chairman—Parlor A.

"The Use of Allegheny Metal (18-8 stainless) in the Sulphite Paper Industry," Dr. Greswold Van Dyke, Jos. T. Ryerson & Sons.

"Recent Developments in Sulphur Dioxide Gas Producing Equipment," S. F. Spangler, Chemical Construction Corporation.

"The Fresk Digester Filling Apparatus," F. O. Kreissler.

"Evolution of Sulphite Manufacturing Based on Forty Years of Practical Experience," Carl Jentz, Champion Fibre Company.

Sulphate—Soda

G. M. Trostel, Chairman—Parlor C.

"Discussion of the Champion Sulphate Recovery System with Waste Heat Boiler," C. G. Klopp.

"How Can We Standardize the Quality of Soda and Sulphate Pulp," led by Chairman Trostel.

Tissue

H. H. Harrison, Chairman—Iroquois Room.

"Rubber Covered Suction Rolls and the Single Felt Tissue Machine," P. M. Foster, Beloit Iron Works.

"High Speed Cylinder for Tissue Machines," A. S. Clark, Clark Manufacturing Company.

Remarks by B. L. Wemhoff

Speaking on "The Permanence of Paper" at a meeting of the book and fine paper group, Byron L. Wemhoff, technical director of the government printing office at

PICTURE TAKEN AT THE THIRTEENTH ANNUAL CONVENTION OF THE AMERICAN P

Washington, D. C., pointed out that the quality of paper is not the only factor in determining its permanence.

"The length of time any paper can be expected to last depends primarily on two things, the quality of the paper itself and the conditions under which it is stored," Mr. Wemhoff said.

"There is a general agreement on the latter, but on the former there is a definite disagreement as to just what constitutes a permanent paper.

"On the one hand, there are those who believe that the source of the papermaking fibers has no effect on the permanence of the paper and that the permanence can be predicted by a series of physical and chemical tests in conjunction with an accelerated aging test at 100 degrees centigrade or possibly by means of one or more other accelerated aging tests.

"On the other hand, there are those who believe that accelerated aging tests must await the test of time to prove their relative worth, and that until such time arrives, the only way to insure paper permanence is to make the paper from all new white or unbleached rags, with the additional safeguard of physical and chemical requirements to insure the necessary strength and freedom from injurious materials."

Friday Morning Session

On Friday morning these papers were presented:

"Pumping Wood Pulp and Paper Stock," M. M. Klosson, Buffalo Pumps Inc.

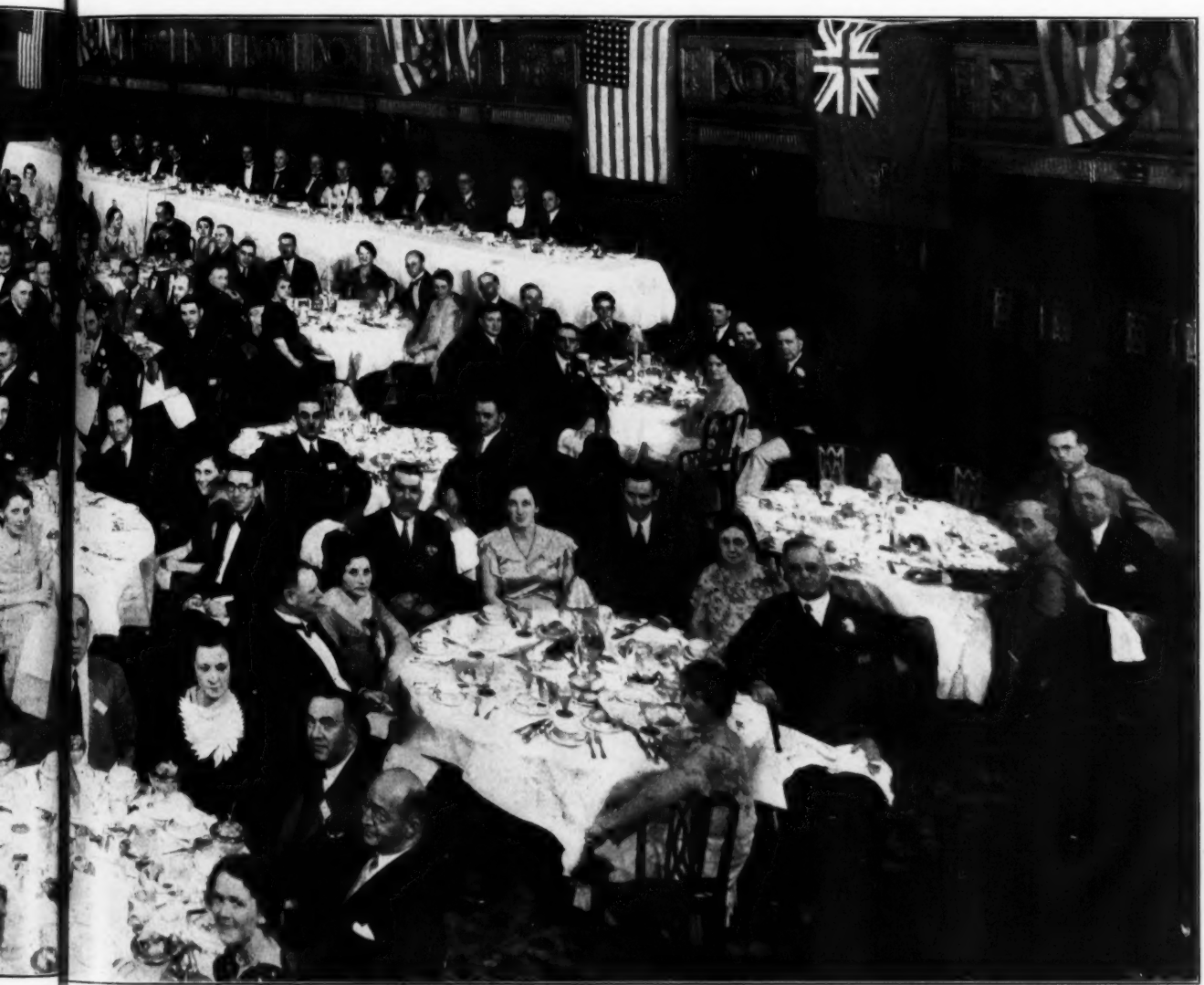
"Sheet Formation Control," L. M. Booth, Booth Chemical Company.

"Automatic Control of the Consistency Variable in the Manufacture of Pulp and Paper," S. E. Meyers, Merritt Engineering and Sales Company.

Immediately following the discussion on these papers, the Business Session was called to order, and reports of committees were presented. New by-laws for the American Pulp and Paper Superintendents Association, Incorporated, were read and adopted. The election of officers followed, with selections listed below.

The New Officers

President, Wm. Brydges, Big Island, Va.
First Vice-President, Herbert Randall, Hamilton, Ohio.



PAPER MILL SUPERINTENDENTS ASSOCIATION, INC., BUFFALO, N. Y., JUNE 2-4, 1932.

WILLIAM H. BRYDGES
President

HERBERT T. RANDALL
First Vice-President

KILLEY E. TERRY
Second Vice-President

Second Vice-President, Killey E. Terry, Cumberland Mills, Maine.

Third Vice-President, Chas. C. Champion, Millers Falls, Mass.

Fourth Vice-President, Michael Redmond, Kalamazoo, Mich.

Fifth Vice-President, F. J. Timmerman, Green Bay, Wis.

Robert L. Eminger, Miamisburg, Ohio, was reelected Secretary and Treasurer.

The Secretary reported a slight loss in membership.

Friday afternoon was devoted to the visitation of paper mills.

An Excellent Banquet

An excellent program was provided for the main banquet which was held in the grand ballroom of Hotel Statler, Friday evening. William MacGregor, of the Carborundum Company, officiated as Toastmaster, and introduced W. H. Lee, Lockport Felt Company, who spoke on "An Executive's View of the Superintendents Association." The Past President's Jewel was presented to Roy H. Kelly, retiring president, by Past President John H. O'Connell, and the Eastwood Golf Cup which was awarded to Herbert Randall, was presented by Gene Bechard, of the Eastwood Corporation.

The annual trophy donated each year by L. D. Post to the member whose contributions to the association have been of an outstanding character, was awarded to Fred J. Rooney.

The speaker of the evening was A. E. Hay, sales manager for Pratt & Lambert, Inc., who spoke on "The Man," and termed his subject the "Missing Link in Business." He pointed out that to overcome the present economic difficulties, and to insure a future and permanent progress, the individual character must be trained mentally, physically and spiritually, so that The Man will be equipped to carry on, and overcome all obstacles.

F. D. Bowman is to be congratulated as chairman of the Entertainment Committee for the excellent stage features which followed. Included in the entertainment were many radio and concert stars. The music was provided by the Pratt & Lambert Orchestra.

CHARLES C. CHAMPION
Third Vice-President

F. J. TIMMERMAN
Fifth Vice-President

ROBERT L. EMINGER
Secretary-Treasurer

*No Whispering Campaign can stop DELTHIRNA PROGRESS!

WHEN, month after month, a continually increasing number of mills specify DELTHIRNA, such acceptance must be deserved. And it is! For today, 19 companies, in the United States and Canada, operating 29 mills with 62 machines, and manufacturing 1650 tons daily, of all grades of paper and board, are satisfied users of DELTHIRNA. And when these strong-minded mill executives testify, that with the use of DELTHIRNA, they are saving from 30% to 50% over their previous sizing costs, and since no DELTHIRNA installation in the U. S. or Canada has ever been removed, they surely can't be wrong. So we say, IF YOU WANT TO KNOW THE TRUTH ABOUT DELTHIRNA, ASK THE MILL MANAGERS WHO USE THEM.

*"Desperate selling gives rise to unfounded rumors, evil gossip, a return to the morass of unsound practices. . . . These are times when rumors are easily started and hard to stop. Salesmen who become gossip mongers defeat themselves."

Amos Bradbury, in Printer's Ink Monthly.

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INCORPORATED
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Sole Sales Agents for

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SMITH MILL
Middletown, Ohio
THE SORG PAPER CO.
SORG MILL
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THE SORG PAPER CO.
OGLESBY MILL
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BYRON WESTON CO.
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THE CRYSTAL TISSUE CO.
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BROWNVILLE PAPER CO.
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CRANE AND CO., INC.
Dalton, Mass.
FORT ORANGE PAPER CO.
Castleton, N. Y.
KEITH PAPER CO.
Turners Falls, Mass.
NEW HAVEN PULP & BOARD CO.
New Haven, Conn.
L. L. BROWN PAPER CO.
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MILLERS FALLS PAPER CO.
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HOWARD SMITH PAPER MILLS
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HOWARD SMITH PAPER MILLS
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DOMINION BOX-BOARDS, LTD.
Toronto, Ont.
BROMPTON PULP AND PAPER CO.
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DON VALLEY PAPER CO.
Toronto, Ont.
ROLLAND PAPER CO.
Saint Jerome, Que.
ROLLAND PAPER CO.
Mont-Rolland, Que.

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South Windham, Me.

AMERICAN DELTHIRNA CORPORATION

Saturday Morning Session

On the morning of the last day of the session two papers were presented:

Qualities of West Coast Pulps" by W. N. Kelley and H. R. Heuer, read by G. S. Brazeau, Weyerhaeuser Timber Company.

"Uniform Cost Accounting for Paper Mills," Thomas J. Burke, Director Cost Section, American Paper and Pulp Association.

Question Box—led by President Kelly.

Ladies Auxiliary Formed

At the Joint Luncheon which closed the convention, Wm. Brydges, new president, announced that the ladies were forming what is to be known as the Ladies Auxiliary

EXHIBIT OF DODGE MFG. CO.

for the purpose of promoting greater interest in the Association.

Papers in Technical Section

A large number of the papers presented at the convention are printed in full in this week's issue of the Technical Section of the PAPER TRADE JOURNAL beginning on page 49.

The Exhibits

The following concerns exhibited pulp and paper mill machinery and allied lines:

MICHAEL REDMOND
Fourth Vice-President

Dilts Machine Works

Considerable attention was focused on this exhibit as there was in operation a Dilts laboratory beating engine with tile lining, furnished and installed by the Stebbens Engineering Company. The beater was motor driven and equipped with Texrope drive through the courtesy of the Allis-Chalmers Manufacturing Company. Dilts Improved Syphon Washer and a model of the Yielding Brackets for Tension Rolls were also shown.

Dodge Mfg. Corp.

Pleasingly displayed in a very effective setting, this exhibit featured the Dodge Hypoid Paper Machine Drive, various types of Dodge Timken Bearings for paper mill machine application and the Diamond "D" Friction Clutch.

Chromium Corp. of America

A considerable number of Crodon-plated samples of products for the paper mill were on display. Of especial interest were the suction box covers and screen plates.

EXHIBIT OF DILTS MFG. CO.

DOWNINGTOWN
RUBBER COVERED
SUCTION
PRESS
ROLLS
Downingtown Rubber Covered Suction Press Rolls are now used on machines making bonds, writings, book, glassine, carbon, coating, greaseproof, jute, rope and rag papers. Rubber Covered Suction Rolls can be used on high clay content papers without shadow marking. Heavier weighting is now possible, which results in more water removal and also insures safer running at increased speeds. The Downingtown Manufacturing Company, Downingtown, Pa.
BRONZE SHELL
RUBBER COVER

Other samples included evaporator tubes, embossing rolls, calender rolls, creping rolls, drying drums, breast, couch, table and press rolls, slice bars and pulp grinding shafts.

Enterprise Machine Co.

This company displayed a model of their compensating drive.

Farnsworth Co.

Heat reclamation equipment.

Merritt Engineering & Sales Co., Inc.

The sensitive precision in the operation of the Meyers-Mesco Automatic Water Feeder for the control of stock consistency was demonstrated by the actual performance of the equipment installed at the exhibit. The Meyers-Mesco Stock Consistency Regulator was also demonstrated.

Page Industrial Supply Co.

Exhibited several new types of the Wiener Rotary Stock Regulating Valves, manufactured by John A. Wiener.

Stowe & Woodward, Inc.

Exhibit featured Stonite Top Press Roll and Rubber Covered Suction Press Roll. There was also displayed Tannite Deckle Strap, Tannite Couch Roll and Rubber Pump Balls.

Samuel C. Rogers & Co.

Exhibited their New Type "R" Rogers Automatic Heavy Duty Knife and Light Face Grinder and a Saw Sharpening Machine.

L. Wimmer

Was represented with Wimmer Meter Valves.

Cling-Surface Co.

At this exhibit was shown two small motor driven generators one equipped with belt not treated and the other with Cling Surface Belt Dressing indicating the efficiency of the latter by the illumination of electric light bulbs.

Carborundum Co.

One of the spectacular features of the convention of the American Pulp and Paper Mill Superintendents Association held at the Hotel Statler in Buffalo, June 2-4 was the displaying of one of the massive Aloxite Brand Pulp Grinding Wheels made by the Carborundum Company in the lobby of the hotel.

It is more or less of a simple matter to install one of these wheels in a pulp mill, but to send it twenty-five miles by truck and then to get the big wheel, mounted on its huge display platform, into the lobby of a hotel is something else again. The wheel arrived at the hotel at midnight Tuesday. With winch and steel cable it was slowly lowered to the sidewalk at the hotel entrance and then inch by inch it was urged through the doorways. A

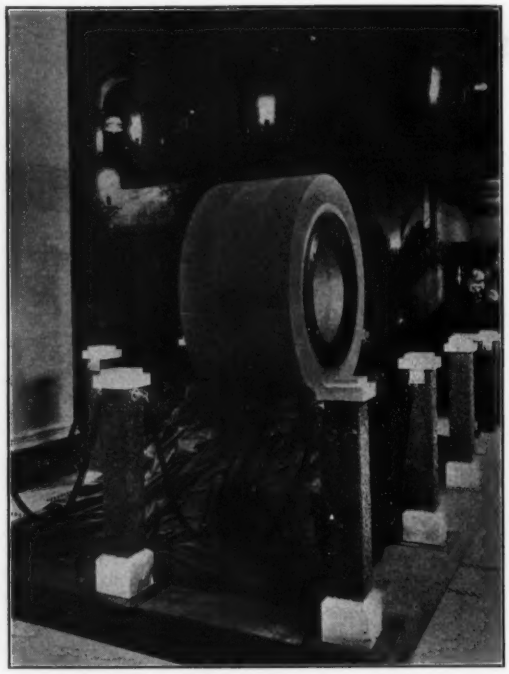

EXHIBIT OF CARBORUNDUM CO.

flight of three steps was bridged with heavy timbers and from another entrance a steel cable was brought along the full length of the lobby. The cable was hitched to the display base, the other end wound on the motor winch on the truck standing on the street and along a planked way the giant wheel was slowly rolled into place.

It took about three hours to do the job, another couple of hours to decorate the base with a rich dark blue velour and to set up the decorative posts studded with brilliant crystals of "Carborundum." The sun was up and the birds singing before the job was finished. Early arrivals at the hotel on Wednesday morning gathered about the big wheel and many a discussion was had as to how in the world it was brought in. A bright spotlight from the hotel mezzanine brought the wheel out in sharp relief and it certainly was an interesting startling exhibit. Incidentally, the wheel and display base weighed approximately sixty-five hundred pounds. During the four days of the convention it is estimated that thousands of people viewed the wheel and John Daniels, Jr., Convention Manager of the Statler, stated that never before in the history of the hotel has a lobby exhibit drawn such attention.

EXHIBIT OF CLING-SURFACE CO.

EXHIBIT OF STONE & WOODWARD, INC.

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STAINLESS and Heat Resisting PIPE AND TUBES

for the Paper Industry

NATIONAL U S S 18-8 Stainless and Heat Resisting Pipe and Tubes afford special resistance to the most familiar and most troublesome forms of corrosion encountered in the Paper Industry. In addition, and of no less importance is the improved strength at high temperatures and the protection from certain acids which characterize this scientifically made material.

While unusual care in manufacture, uniformity of structure and high tensile strength under all ordinary conditions are taken for granted in any NATIONAL Seamless Steel product, these newer alloy-steel pipe and tubes are designed to give still greater factors of safety and economy to meet the more rigid requirements of modern methods. NATIONAL engineers and metallurgists will gladly lend their aid in determining the best application of this material to any particular use in your plant. Correspondence is invited.

U S S Chromium-Nickel Alloy Steels are produced under the licenses of the Chemical Foundation, Inc., New York; and Fried. Krupp A. G. of Germany

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NATIONAL TUBE COMPANY

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QUALITY PRODUCTS — Dependable Service

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AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
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ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY
OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R. R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

Those Who Attended

Members of the association and friends who attended the convention were as follows:

Mr. and Mrs. A. J. Allison, Simonds Worden White Co., Dayton, Ohio; O. P. Arnold, Stowe-Woodward, Inc., Newton Upper Falls, Mass.

C. L. Bachelder, Paper Makers Chemical Corp., Kalamazoo, Mich.; Mr. and Mrs. E. N. Bechard, Eastwood Corp., Belleville, N. J.; C. H. Luther Beighey, Hammermill Paper Co., Erie, Pa.; Barnard Bensen, Williams Gray Co., Chicago; F. E. Bentley, Noble & Wood Machine Co., Hoosick Falls, N. Y.; O. L. Berger, G. D. Jenssen Co., New York City; Lawrence H. Bidwell, Riegel Paper Corp., Riegelsville, N. J.; L. M. Booth, Booth Chemical Co., Elizabeth, N. J.; F. E. Boyce, Wausau Paper Mills Co., Brokaw, Wis.; A. T. Brainerd, Ciba, Co., Chicago; G. S. Brazeau, Pulp Div., Weyerhaeuser Timber Co., Longview, Wash.; Mr. and Mrs. L. H. Breyfogle, Draper Bros. Co., Kalamazoo, Mich.; Mr. and Mrs. J. H. Brougham, Brownville Board Co., Brownville, N. Y.; Mr. and Mrs. W. H. Brydges, Bedford Pulp and Paper Co., Big Island, Va.; Mr. and Mrs. Harold H. Burrows, Manhattan Rubber Mfg. Div., Passaic, N. J.; Harry C. Busser, York Haven Paper Co., York Haven, Pa.; Mr. and Mrs. E. W. Bush, Provincial Paper Mills, Ltd., Thorold, Ont.

Robert Caldwell, J. & J. Rogers Co., Au Sable Forks, N. Y.; O. W. Callighan, Edgar Bros. Co., New York City; John F. Carroll, New York City; Charles Champion, Millers Falls, Mass.; A. B. Clark, J. O. Ross Engineering Corp., New York City; James B. Clarke, National Aniline & Chemical Co., Chicago; Samuel Clayman, Clinton Corn Syrup Refining Co., Philadelphia; Arthur A. Coffin, Titanium Pigment Co., Brooklyn, N. Y.; P. L. Conway, Link Belt Co., Chicago; J. D. Corfield, Michigan Steel Casting, Detroit, Mich.; John Cornell, The Paper Mill, New York City; O. M. Cornell, Kalbfleisch Corp., New York City; Mr. and Mrs. W. H. Croft and Miss Ruth M. Croft, Esleeck Mfg. Co., Turners Falls, Mass.

Mr. and Mrs. V. S. Denison, Beloit Iron Works, Beloit, Wis.; J. C. Dieffenderfer, Paper Makers Chemical Corp., Easton, Pa.; J. H. Dow, Castle & Overton, Inc., New York City; Lewis Dozier, Rhinelander Paper Co., Rhinelander, Wis.; F. W. Drake, Lockport Felt Co., Newfane, N. Y.; Mr. and Mrs. A. B. C. Drew and Miss Dorothy E. Drew, The Pairpoint Corp., New Bedford, Mass.; T. L. Dunbar, Chemi-pulp Process, Inc., Watertown, N. Y.

I. Ekholm, National Aniline and Chemical Co., New York City; Mr. and Mrs. Robert L. Eminger, National Secretary-Treasurer, Miamisburg, Ohio; L. H. Everlien, Appleton Woolen Mills, Appleton, Wis.

F. C. Farnsworth, Farnsworth Co., Watertown, N. Y.; J. J. Farrell, Downingtown Manufacturing Co., Downingtown, Pa.; Mr. and Mrs. Fred H. Fielding, Diamond Mills Paper Co., Bloomfield, N. J.; Victor E. Fishburn, Burgess Cellulose Co., Freeport, Ill.; W. W. Fitzgerald, Northern Paper Mills, Green Bay, Wis.; E. D. Flintermann, Michigan Steel Casting Co., Detroit, Mich.; L. P. Fortier, Michigan Paper Co., Plainwell, Mich.; Samuel J. Fortune, Rochester Paper Co., Rochester, Mich.; Jas. Foxgrover, Paper Makers Chemical Corp., Kalamazoo, Mich.; Mr. and Mrs. Herbert F. Freas, Spaulding Fibre Co., Inc., Tonawanda, N. Y.; W. W. French, Dodge Manufacturing Corp., Mishawaka, Ind.; L. D. Frisbie, Westfield River Paper Co., Russell, Mass.; P. M. Foster, Beloit Iron Works, Beloit, Wis.

Wilson Galloway, Hager Straw Board and Paper Co., Cedarville, Ohio; Mr. and Mrs. E. R. Granger, Chromium Corp. of America, New York City; Wm. D. Gregor, E. B. Eddy Co., Ltd., Hull, Que., Can.

Russell W. Hamilton, Nashua River Paper Co., East Pepperell, Mass.; J. A. Hamm, Shartle Bros. Machine Co., Middletown, Ohio; Mr. and Mrs. John A. Hanson, Badger Paper Mills, Peshtigo, Wis.; H. H. Harrison, Crystal Tissue Co., Middletown, Ohio; Hal. Harvey, Enterprise Machine Co., Middletown, Ohio; Tom Harvey, Middletown, Ohio; J. D. Haskell, Dilts Machine Works, Inc., Fulton, N. Y.; Mr. and Mrs. John H. Hayes, Waterbury Felt Co., Skaneateles Falls, N. Y.; T. C. Hazard, Taylor Instrument Companies, Rochester, N. Y.; M. W. Hedden, Racquette River Paper Co., Potsdam, N. Y.; G. A. Hermann, Hermann Mfg. Co., Lancaster, Ohio; E. L. Hobaugh, International Paper Co., Piercefield, N. Y.; R. W. Hooker, Hooker Electro Chemical Co., Niagara Falls, N. Y.; Mrs. Florence Hooper and A. S. Hooper, International Paper Co., Corinth, N. Y.; H. A. Horstmann, General Dyestuff Corp., New York City; Allan Hyer, The Black-Clawson Co., Hamilton, Ohio; Mr. and Mrs. Ronald W. Hynes, Newton Falls Paper Co., Newton Falls, N. Y.

Frank A. Johnson, Sherman Paper Co., Watertown, N. Y.; C. H. R. Johnson, Downingtown Manufacturing Co,. Downingtown, Pa.

Thos. J. Kennan, The Paper Industry, New York City; Mr. and Mrs. R. H. Kelly, Marathon Paper Mills, Rothschild, Wis.; John P. Kennedy, American Writing Paper Co., Holyoke, Mass.; A. J. Kennedy, Sandy Hill Iron and Brass Co., Hudson Falls, N. Y.; C. H. Kent, Mansfield, Bolton & Kent, New York City; C. H. Kephart, York Haven Paper Co., York Haven, Pa.; W. S. Kidd, E. B. Eddy Co., Hull, Que., Can.; Mr. and Mrs. Conrad J. Kern, The Moore & White Company, Philadelphia, Pa.; Kenneth T. Kind, Du Pont Co., Chicago; Harry C. Kinned, Bagley & Sewall Co., Watertown, N. Y.; Mr. and Mrs. Chas. G. Klopp, Champion Fibre Co., Canton, N. C.; Mr. and Mrs. Edward Kormin, Heller & Merz Corp., New York City; Harry J. Krus, Nashua River Paper Co., East Pepperell, Mass.

J. H. Loomis, Heller & Merz Corp., New York City; F. H. Lueders, Seybold Machine Co., Dayton, Ohio; W. F. Luking, Waterbury Felt Co., Skaneateles Falls, N. Y.

John N. McGrath, Case Manufacturing Co., Unionville, Conn.; Mr. and Mrs. W. F. McCellan, East Hartford, Conn.; R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, New York City; Wm. MacGregor, Carborundum Co., Niagara Falls, N. Y.; Mr. and Mrs. Milton J. Maguire, Paper Makers Chemical Corp., Albany, N. Y.; Ed. McWhirter, Provincial Paper Ltd., Georgetown, Ont., Can.; M. Craig Maxwell, McDowell Paper Mills, Manayunk, Philadelphia; Geo. E. Mayo, Unity Paper Corp., Potsdam, N. Y.; A. D. Merrill, Chemi-Pulp Process, Inc., Watertown, N. Y.; S. E. Meyers, Merritt Engineering and Sales Co., Lockport, N. Y.; Mr. and Mrs. B. D. Millidge, Howard Smith Paper Mills, Cornwall, Ont., Can.; O. J. Mills, Sandy Hill Iron and Brass Co., Hudson Falls, N. Y.; T. H. Morriessey, Shuler & Benninghofen, Hamilton, Ont.; Charles E. Mueller, Paper Makers Chemical Corp., Kalamazoo, Mich.; Gavin C. Morton, Waterbury Felt Co., Skaneateles Falls, N. Y.

B. R. Neice, American Dyewood Co., Belleville, N. J.; J. D. Nevelle, Sidney Roofing and Paper Co., Victoria, B. C.; Joe Niks, Chillicothe Paper Co., Chillicothe, Ohio; Mrs. C. H. Noble, Staley Sales Corp., Decatur, Ill.; Mr. and Mrs. C. F. Nostrant, Upson Co., Lockport, N. Y.

J. H. O'Connell, Case Mfg. Co., Unionville, Conn.; Mark C. Osborne, Dilts Machine Works, Inc., Fulton, N. Y.; J. W. Outerson, Paterson Parchment Paper Co., Modena, Pa.

E. Peterson, B. F. Goodrich Rubber Co., Akron, Ohio; W. E. Phillips, Mathieson Alkali Works, Chicago; David D. Piller, Wm. Cabble Excelsior Wire Co., Brooklyn, N. Y.;

Note the Blade Mounting »» »» »»

—IT'S DIFFERENT

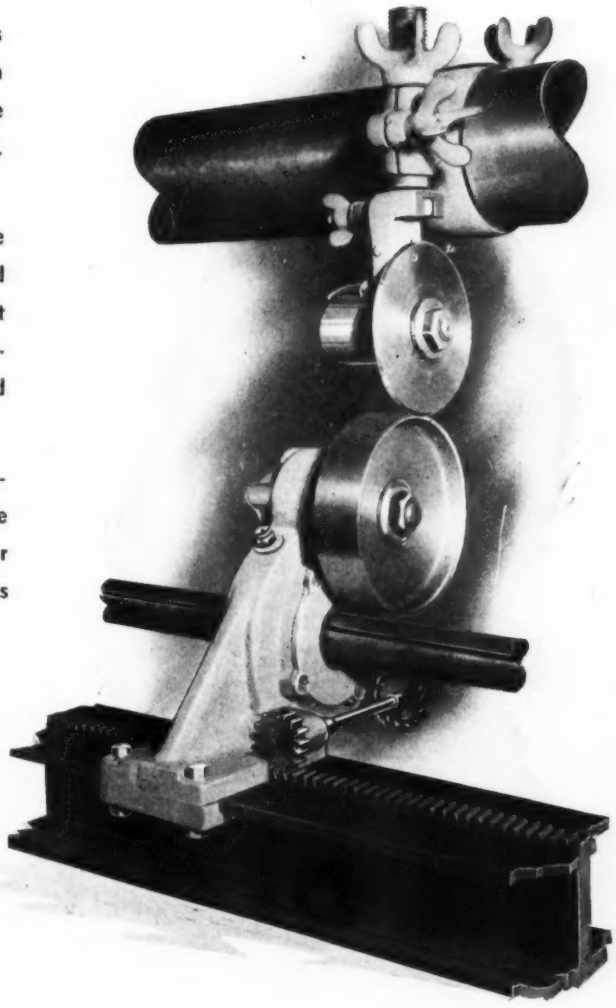
ACCESSIBLE for YOUR CONVENIENCE

Under the usual arrangement of mounting bottom blades directly on shaft, a dull blade is more easily observed than cured. It is necessary to dismount shaft, and possibly a couple of blades, to replace a dull or nicked blade midway of shaft. Hence the tendency to postpone regrinding bottom blades.

In "M & W" Ball Bearing Slitters, these causes of trouble are avoided. The bottom blades, instead of being mounted directly on shaft, are mounted above it and gear-driven at three times shaft speed. This permits using slow-running, vibrationless shaft. Both drive shaft (which is splined) and slitter spindles run in annular ball bearings.

This gives a true-running, almost frictionless and wearless condition with minimum need for lubrication. Any bottom blade can be replaced in a moment or so, without disturbing shaft or any other blade, merely by undoing end nut holding it on its shaft.

To complete the improvement, top blades also run in ball bearings. Thus the chance of frictional drag, and of wabble due to worn bearings, is eliminated. Any top blade is replaced, like any bottom blade, by removing one nut.



- SAVES CLAIMS FROM PRINTERS DUE TO DUST AND BAD EDGES.
- PREVENTS BLADE WABBLE THUS ELIMINATING SLITTER CRACKS.

Easy Blade Removal

Off and on in a Jiffy . . . Just undo the Nut

THE MOORE & WHITE COMPANY

Paper Mill Machinery

FIFTEENTH ST. AND LEHIGH AVE. PHILADELPHIA, PA.

Mr. and Mrs. L. D. Post, L. D. Post Co., New York City; Max. Poyck, Heller & Merz Corp., New York City; Robert W. Price, Lockport, N. Y.

J. W. Raines, Lindsay Wire Weaving Co., Cleveland, Ohio; A. E. Randall, Oxford Miami Paper Co., West Carrollton, Ohio; Herbert T. Randall, Champion Coated Paper Co., Hamilton, Ohio; Mrs. Arthur M. Read; M. Redmond, Kalamazoo Paper Co., Kalamazoo, Mich.; Homer M. Rice, E. I. Du Pont de Nemours Co., Watertown, N. Y.; A. F. Richter and Carl F. Richter, Stebbins Engineering and Manufacturing Co., Watertown, N. Y.; Wm. J. Robertson, Heller & Merz Corp., New York City; James Rogers, J. & J. Rogers Co., Ausable Forks, N. Y.; Mr. and Mrs. Fred J. Rooney, Lockport, N. Y.; John D. Rue, Hooker Electro Chemical Co., Niagara Falls, N. Y.

J. Scheuerman, Cameron Machine Co., Brooklyn, N. Y.; W. H. Scott, Duriron Co., Inc., Dayton, Ohio; C. M. Shipway, Wm. E. Hooper and Sons Co., Philadelphia; Mr. and Mrs. Harold Sinclair, Bennett Inc., Cambridge, Mass.; Wm. H. Sievert, Michigan Carton Co., Battle Creek, Mich.; C. B. Smith, Huron Milling Co., Kalamazoo, Mich.; C. C. Snyder, Central Alloy Co., Massillon, Ohio; F. A. Soderberg, General Dyestuff Corp., New York; Homer E. Stafford, Hawthorne Paper Co., Kalamazoo, Mich.; Oscar Stamets, Riegel Paper Corp., Milford, N. J.; Howard Stansell, West Carrollton Parchment Co., West Carrollton, Ohio; Mr. and Mrs. S. G. Stapley, Chemical Paper Co., Holyoke, Mass.; Cornelius Stapley, Holyoke, Mass.; E. L. Stansel, Provincial Paper Ltd., Mills Roche, Ont.; Ludwig Starck, Wilson Wire Works, Inc., Kearny, N. J.; James Stewart, Chemical Paper Co., Holyoke, Mass.

E. L. Tewksbury, Stowe-Woodward, Inc., Newton Upper Falls, Mass.; Wm. H. Theroux, Williams Gray Co., Chicago; F. J. Timmerman, Northern Paper Mills, Green Bay, Wis.; Geo. W. Tripp, Treadwell Supply Co., Watertown, N. Y.; Geo. M. Trostel, Champion Fibre Co., Canton, N. C.; J. A. Turner, Du Pont Co., Chicago.

Roy H. Underdown, American Dyewood Co., Philadelphia.

Robert W. Van Kirk, Jr., Penick & Ford Sales Co., Cedar Rapids, Ia.; Geo. W. Van Steenbergh, PAPER TRADE JOURNAL, New York City; Carlo Vicario, Nash Engineering Co., New York City.

Joseph H. Wallace, Black-Clawson Co., Hamilton, Ohio; N. P. Wardwell, Carthage Machine Co., Carthage, N. Y.; Melvin R. Ware, Glyndon, Md.; Wm. T. Webster, J. O. Ross Engineering Corp., New York; Vincent Welch, Union Screen Plate., Fitchburg, Mass.; Fred B. and Cora Wells, Ohio Box Board Co., Rittman, Ohio; Harry E. Weston, The Paper Industry, Chicago; Washburn Weston, American Wringer Co., Woonsocket, R. I.; Frank A. Whittiger, Ciba, Co., Chicago; Mr. and Mrs. John A. Wiener and Miss Antoinette Wiener, Oswego, N. Y.; Almeron W. Wickham, MacAndrews & Forbes Co., Camden, N. J.; A. G. Wightman, Knowlton Bros. Inc., Watertown, N. Y.; Lee L. Wilson, Morris Paper Mills, Morris, Ill.

F. L. Zellers, French Paper Co., Niles, Mich.

Madison Paper Houses to Merge

The Madison Paper and Supply Company, of Madison, Wis., as of June 1, announces the merging of its interests with the General Paper and Supply Company of Madison, Wis., both businesses to be operated in the future under the name of the General Paper and Supply Company, serving their trade through the same personnel as heretofore.

The merging of stocks of both companies under one roof will give increased facilities and as a result of this combination assure even better services than heretofore.

Changes in Pulp Statistics

The Tariff Commission in its report to the Congress on wood pulp and pulpwood presented tables showing the production during the three years 1929, 1930, and 1931 of a large number of domestic pulp mills. This number, however, did not include all mills but was considered sufficient to be representative of the changes in production in the industry as a whole. The data as published included only reports of mills which were already in existence in 1929. It was subsequently found that in the case of one of the major producing districts, (V. the Pacific Coast) certain new mills had been put into operation after 1929 which should have been included if the returns were to be representative of the production of bleached sulphite pulp in that region. With the inclusion of these mills the reports for Region V cover approximately 80 per cent of the total production of wood pulp (of all kinds combined) in that region.

The inclusion of data for these new mills somewhat alters the statistics as presented, the principal change being in table 37, page 89. The attached sheet shows the original and the revised figures of table 37. These changes and others occasioned by them in other tables of the report and the related text will be made in the published report.

TABLE 37—PRODUCTION OF WOOD PULP BY PULP MILLS REPORTING TO THE TARIFF COMMISSION SEGREGATED BY REGIONS FOR 1929-1931
(In tons of 2000 pounds)
(Showing for data requiring revision, the original and corrected figures)

	Sulphite, unbleached Region V		Sulphite, bleached Region V	
	(original)	(revised)	(original)	(revised)
1930				
January-March	60,116	60,116	21,984	21,984
April-June	57,745	58,259	23,470	23,470
July-September	51,798	54,666	21,109	31,673
October-December	50,925	53,183	17,345	35,777
1931				
January-March	48,455	50,650	9,711	30,228
April-June	58,612	63,196	10,472	30,942
July-September	57,273	57,273	12,908	38,588
October-December	51,721	53,417	11,423	34,893

	Ground wood, unbleached Region V	
	(original)	(revised)
1930		
January-March	69,387	69,387
April-June	74,602	74,922
July-September	31,294	31,686
October-December	41,079	41,528
1931		
January-March	61,456	61,969
April-June	49,288	49,927
July-September	29,235	29,783
October-December	33,985	34,395

New Pulp Cleaning Device

For machines pulling so heavy a tonnage that the use of Erkensators are prohibitive, this recently patented machine offers a simple and practical method to more thoroughly clean the pulp.

By using a napped felt in the bottom of a sand-trap the heavy particles are gathered and held for a time. By moving the felt in the direction opposite to the flow of the stock and cleaning the felt continuously, the collected dirt is constantly taken away from the pulp.

Bark is always apt to be present in pulp stock. All bark fiber has a rough exterior. When in contact with the nap of the felt its tendency is to cling to the nap. The bark is more easily washed along with the stock than the heavier particles, but by the arranged method of constantly cleaning the sand-trap floor covering, a much larger amount of the objectional material is removed.

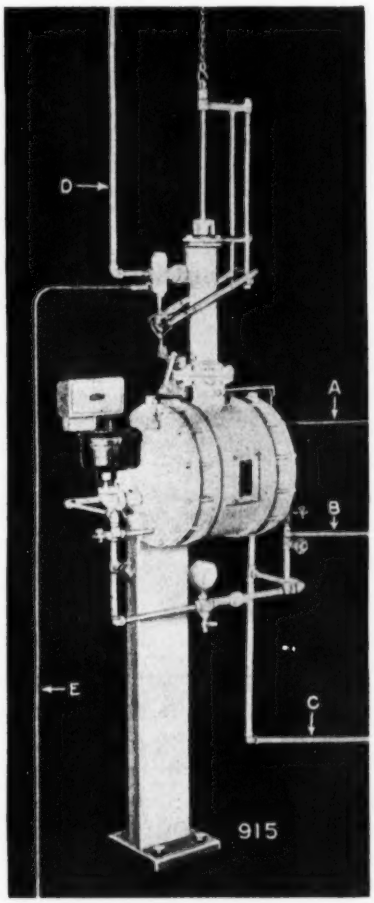
The patent issued under number 1,846,522 has been granted to F. C. Ladd, Keith Paper Company, Turners Falls, Massachusetts, for an apparatus to clean the pulp as outlined.

CONTINUOUS BEATERS

Are Being Equipped With

MEYERS-MESCO

AUTOMATIC WATER FEEDER



SOME OF THE MANY ADVANTAGES:

1. Close automatic control of stock consistency at beater.
2. Uniform density of stock.
3. Decreased power per ton due to uniform operation.

BULLETIN NO. 3101

MEYERS-MESCO REGULATOR

promptly and automatically controls paper and board stock consistency with constancy and precision.

It corrects variation at the source before the board or sheet is formed.

It funtions in the whole body of fluid stock and avoids the danger of dealing with so-called samples arbitrarily taken from the supply.

BULLETIN NO. 3105

MERRITT ENGINEERING & SALES CO., INC.
LOCKPORT, N. Y.
U. S. A.

Price Bros. & Co., Ltd., Completely Reorganized

Lord Beaverbrook, In Presenting Scheme of Reconstruction, Stresses Fact That Control of Concern Would Remain With Price Family—Declares Company Would Remain Separate Entity and Would Not Enter Any Proposed Combines or Mergers

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 6, 1932—Quite a sensation was caused in Quebec on Saturday by the action of shareholders at the annual general meeting of Price Bros. & Co., when steps were taken for a complete reorganization of the company, and a new board of directors elected which did not contain the name of a single member of the Price family. These developments were not unexpected, but they came as a distinct shock to the people of Quebec, for the company's history is rooted back in the years before 1810 when William Price, the first of the Price family in Canada, arrived on Canadian shores, commissioned by the British Admiralty to find timber suitable for masts of British ships. Napoleon at that time had cut England off from its source of supply in Scandinavian countries. The pioneer Price returned to Canada in 1817 and began the lumbering business which eventually resulted in the great lumber and news print firm of Price Bros. & Co.

Climax Due to Unsecured Loans

Matters were brought to the present climax by the revelation that the company had made large advances of money to the Quebec Investment Company, "a shareholder." The loans to this company totalled $1,273,500, this figure not including interest. Practically all the directors, with the exception of members of the Price family and Leonard Apedaile, entered protests as soon as they became aware of the loans, which are unsecured.

The announcement of the resignation of Col. John Price, as president, J. L. Leonard Apedaile as vice-president, and H. E. Price, as secretary-treasurer, came with dramatic suddenness at the opening of the meeting. The meeting was therefore held under the chairmanship of A. J. Brown, K. C., well-known corporation lawyer, of Montreal. The annual statement was submitted and approved, with the exception of the statement regarding the unauthorized loans.

Col. John Price, in a statement he read to the meeting, said the Investment Company had acquired control of the Donnacona Company for Price Brothers, at no charge to the company, and had purchased debentures of the Donnacona Company which now stood them at a loss. It had also spent some of the advances in supporting the securities of Price Brothers in a falling market. He said the management had acted in good faith, and pledged the efforts of himself and his associates to payment of the advances which at the present time was practically impossible.

Debentures to be Issued

Lord Beaverbrook, who is a shareholder of the company, presented a scheme of reconstruction for Price Brothers, whereby the holders of the first mortgage six per cent 20-year sinking fund gold bonds due in 1943, will waive payments to the sinking fund for a period of five years. They will also be asked to forego their claims against the company in case of default in interest for the same period of time.

The holders of bonds on Price House will be asked to change their bonds for six per cent 15-year income debentures.

There is no guarantee of the Price Bros. & Co. as to principal and interest of these bonds, but theirs is a lease which requires the Price company to pay sufficient rental in the building to cover interest and sinking fund payments. If, during the life time of these debentures the company earns the interest or any part of the interest it will be obliged to pay it out forthwith.

Creditors of Price Bros. & Co. are to be given these income debentures in full satisfaction of their claims against the company. These creditors have claims approximating $1,200,000. The total issue of income debentures will be authorized to total $5,000,000.

The company has a power contract with the Duke Price Power Company, whose annual charges are $870,000 in United States funds, which represents an obligation in Canadian money of approximately $1,000,000. This company will be asked to take income debentures for its annual charges for an unspecified period. Lord Beaverbrook said he had interviewed Arthur and Edward Davies, of the Duke Price Company, and received a sympathetic hearing. No definite answer has yet been received, however.

Adjustment of Stock Planned

The holders of the 62,920 shares of 6½ per cent cumulative redeemable sinking fund preferred stock will be asked to forego the cumulative dividend specifications for a period of five years. In satisfaction of this wavier, the preferred holders are to receive some common stock. There is to be an adjustment between the preferred and common shares. This will mean a reduction in the present outstanding common stock and the issue of new to the preferred holders.

The reconstructed Price company will remain as an independent company and will not enter or be a part to any consolidation. Lord Beaverbrook delivered an emphatic ultimatum to the meeting in this connection. He said there had been rumors to the contrary, saying that it was part of a consolidation scheme. This he denied.

In this brief statement, the Canadian born peer blasted the hopes of the so-called "Beatty Newsprint Consolidation Committee" of bankers who had hoped to include Price Brothers in a broad merger of Canadian companies along geographical lines.

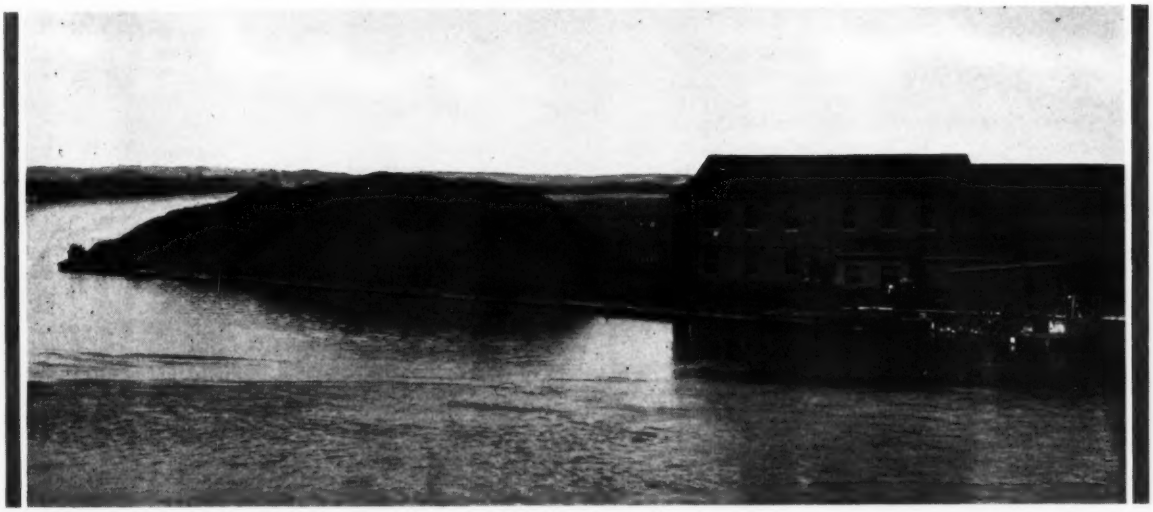
New Board of Directors

The board of directors, as elected at the meeting follows: A. J. Brown, K.C.; Allan A. Aitken, (brother of Lord Beaverbrook); Major Andrew P. Holt; Sir William Stavert; Sir Ian Hamilton Benn, Bt.; Sir Keith W. Price; Victor M. Drury; William P. Creagh; Claude S. Richardson; J. Angus Ogilvie; F. Campbell Cope; John G. Porteous; Alfred H. Lang; George T. Hardie and Herbert W. Jackson.

A complete board of directors, as called for by the by-laws of the company, were elected, although all are not to remain on the board. The new board will immediately take steps to reduce its number and the last eight mentioned will retire. Also, a director will retire and Blair Gordon, son of Sir Charles Gordon, will be elected a director to represent the Bank of Montreal on the board.

Col. John Price will be made the operating vice-presi-

Is a River Carrying Dollars Away from Your Plant? • • • • •



ALMOST every river and brook which receives white water from pulp and paper mills carries away a stream of potential profits. Any mill discharging white water that contains more than 1.0 lb. of stock per 1000 gallons is wasting money in the form of good, usable fibre that can be recovered.

Mills operating Oliver United Save-Alls have dammed up this source of waste. The Save-Alls save this stock and the paper is improved by including the fine fibre in the finished sheet.

In some mills the white water which has passed through the Save-Alls contains as little as 0.2 lb. per 1000 gallons. Most mills re-use part or all of the filtrate on the showers.

On request we will be glad to have our engineers make tests at your plant and estimate the savings you can make in your mill. Write or wire our nearest office.

OLIVER UNITED FILTERS INC.

SAN FRANCISCO
Federal Reserve Bank Bldg.
NEW YORK
33 West 42nd Street
PARIS

CHICAGO
221 North La Salle Street
TORONTO
330 Bay Street
LONDON

TOKYO Andrews & George Co., Inc.
MELBOURNE Crossle & Duff, Pty., Ltd.
MANILA The Edward J. Nell Co.
SOERABAJA, JAVA, Van Leyveld & Co.
RECIFE, BRAZIL Ayres & Son
JOHANNESBURG—E. L. Bateman, Pty., Ltd.
STOCKHOLM—T. An Tesch

FACTORIES: Oakland, Cal., Hazleton, Pa., Peterboro, England. Cable Address: OLIUNIFILT

dent when their plan has been completed, although this will not necessarily mean his election to the board of directors.

Lord Beaverbrook Explains Interest

Lord Beaverbrook announced that he had come to the aid of the company at the invitation of Colonel Price. The plan, he said, involved no change in control. It rested as it always has with members of the Price family and their immediate associates.

Lord Beaverbrook said his interest in the company was as one of its largest shareholders and also as one of the largest customers of Price Bros. & Co. During the months of March and April he took one-quarter of the output of the plants, he stated. The speaker said he would be glad to take the chairmanship of the various committees which would be necessary in order to complete the "reconstruction program."

"I do this," said Lord Beaverbrook, "not only because of my affection for Sir William Price, but because of my attachment for the young Price boys." The sponsor of the changes said his present interest in Price Brothers was exactly the same as it was 23 years ago when he was associated with the late Sir William Price. "No more, no less," he added.

Lord Beaverbrook also said he would be willing to take a place on the board of directors after the reorganization had been completed.

At a subsequent meeting of the new board of directors, Allan Aitken, brother of Lord Beaverbrook, was named president of Price Bros., Ltd.; Major Andrew Holt, son of Sir Herbert Holt, of Montreal, vice-president, and W. E. Elwin, treasurer.

Government Studies News Print Situation

Although there has been no official statement regarding the attitude of the Dominion government in relation to the difficulties in which many pulp and paper enterprises find themselves, it is known that attention has been given to the financial status of a number of news print concerns.

According to a despatch in the *Montreal Star*, a question which is now being seriously considered is the merit of allowing these enterprises to go into liquidation by the appointment of receivers and looking for their rehabilitation on the basis of a sounder and less exacting financial structure.

The companies concerned are essentially provincial, with their pulp lands secured from Provincial Governments. Nevertheless, there is a Federal aspect to the situation when, as is well understood to be the case, Dominion assistance is sought under the provisions of the recent legislation regarding loans, advances or guarantees to certain corporate securities.

The despatch continues:

"The news print industry, inquiry fully establishes, is inherently sound. The available resources are enormous and the mills most efficient. The difficulty is attributable to what is described as 'crude financing' in the days of the speculative mania. The industry is said to be crippled by the effort to pay interest on the bonds, much of it payable in New York funds when the Canadian dollar is at a discount.

"Elimination of the over-capitalization is the big problem and whether it should be done and how to do it are just now the subject of much consideration. Those who advocate this course point out that the common stocks are largely held in Canada and consequently that outside credit would not be affected.

"A second argument is that the bondholders would become the preferred creditors and, taking possession, could remove the difficulty created by the fixed interest rates. As times improve, it is calculated that their position, financially, would fully justify the temporary embarrassment from the liquidation process. Much consultation on the subject is in progress."

Newsprint Institute Disappears

The Newsprint Institute of Canada, the headquarters of which were in Montreal, has ceased to exist. The organization was formed by the larger producers of news print to stabilize the market and to arrange for the distribution of new business on a *pro rata* basis. Its efforts were never completely successful and recently it figured in a case brought by Price Bros. & Co. for breach of contract, judgment in which is still pending. The United States Federal Trade Commission recently characterized the organization as a price-fixing combine.

Reorganization of Fraser Companies

A plan for the reorganization of Fraser Companies, is to be submitted at a meeting of the holders of the company's 6 per cent, three-year convertible collateral trust gold notes, to be held in Montreal on June 20. The plan, which embraces the complete capital structure of Fraser Companies, Ltd., and that of its subsidiary, the Restigouche Company, Ltd., proposes the issue of new bonds at similar rates of interest, but with flexible provisions for the commencement of interest payments, in lieu of bonds and secured notes, already outstanding upon which service has become difficult. It also proposes the issue of voting trust certificates, and, for working capital purposes, the authorization of prior lien bonds to an amount not exceeding $2,000,000 together with the wiping-out of nine-tenths of the issued common stock. Provisions will be made to protect the working capital position of the Fraser company by prohibition of dividends on capital stock except on fulfilment of certain conditions.

International Paper of Newfoundland

International Power and Paper Company of Newfoundland, Ltd., a division of International Paper and Power Company, reports that after all charges, including taxes, all interest, depreciation and depletion, amortization, etc., net earnings added to surplus for the year 1931 amounted to $634,630 against $764,641 in 1930.

News print paper prices were $5 per ton lower throughout 1931, but production rose to 175,269 tons in 1931 from 168,051 tons in 1930. Although there was a decline in the price of news print, effective January 1 of this year, which in the more important metropolitan areas in the United States amounted to $4 per ton from the figure prevailing during 1931, the outlook of the company is not unfavorable, as a fair volume of business is available and definite plans have been made for offsetting the anticipated reductions in gross revenues as far as possible through increased efficiency in operations at the mill and in the woods.

Gross sales for 1931 amounted to $9,493,192 as against $8,822,995 in 1930 and net revenue to $2,923,253, as against $3,073,596 in the previous year. The surplus at the end of 1931 had been increased to $3,152,416 from $2,517,786 at the end of 1930.

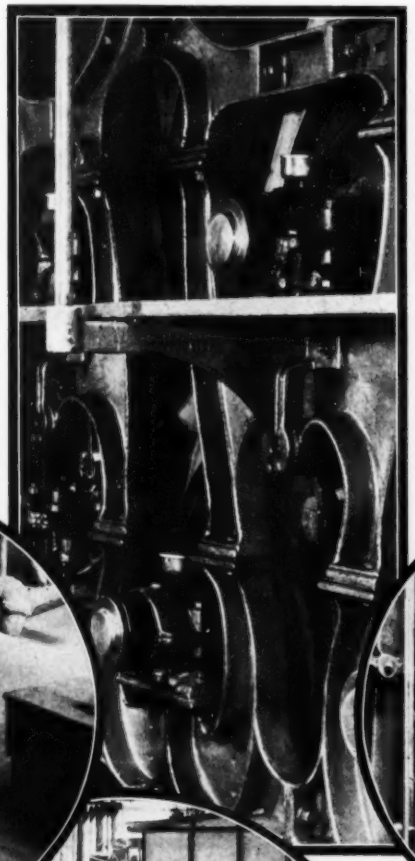
Joins Watervliet Paper Co.

Clarence B. Lindstrom, who for the past 23 years had been with the Paper Mills' Company, a jobbing house in Chicago as assistant vice president and manager of sales, has resigned his position there to join the Watervliet Paper Company, of Watervliet, Mich., in the capacity of sales manager.

From Beater to Calender Stack

BEATER ROOM—Temperature of beater bearings in an Ohio paper mill ran 200° F. Gargoyle Lubricants were applied and bearing temperatures dropped to an average of 84° F. Grease consumption had been as high as 25 pounds per day. It was reduced to about 3 pounds per 40 days with Gargoyle Lubricants.

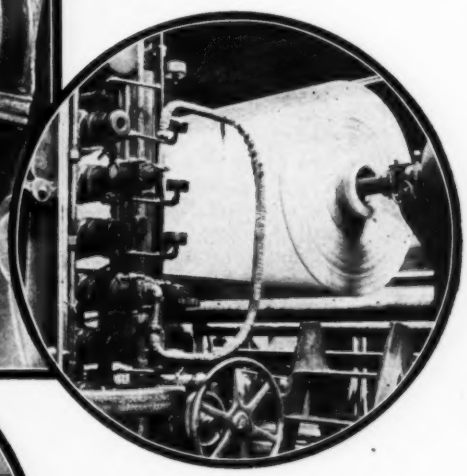
PAPER MACHINE—A Michigan plant had trouble with deposits in chamfers and stuck oil rings in dryer bearings. Gargoyle Lubricants were applied with Vacuum engineering recommendations. These troubles were then eliminated and power consumption was reduced 29%.

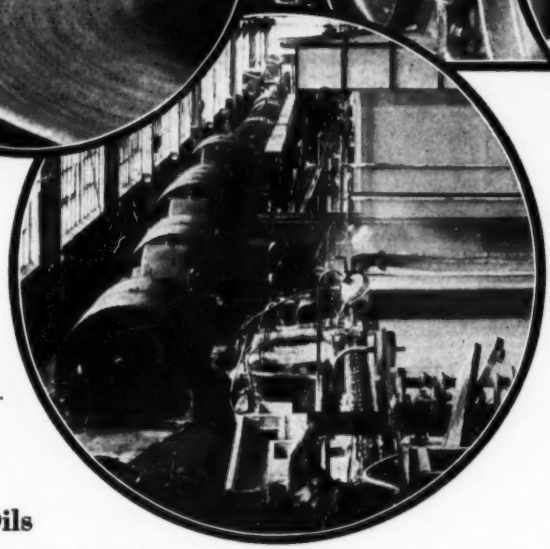


Gargoyle Lubricants *Cut Costs*

Many leading mills prove this for You

CALENDER STACKS—In an Ohio mill no-load readings were taken with a competitive oil in service. Gargoyle D. T. E. Oils were put in for a test run under similar conditions. A 26.4% saving in no-load power and a 60% decrease in oil consumption was then shown.





MACHINE ROOM—A Louisiana mill found Gargoyle Lubricants saved $4,048.80 in power; $571.00 in Fourdrinier wire cost; $607.50 in lubricant cost; $6,420.00 in maintenance cost—total saved $11,647.30.

GARGOYLE

Lubricating Oils

HUNDREDS of examples like these show how Gargoyle Lubricants and Vacuum engineering service have cut costs on every type of pulp and paper machine. With practical experience like this, isn't it likely that Gargoyle Lubricants can also help to cut your costs? A representative can show you many important economies which Gargoyle Lubricating Oils have brought about in mills similar to your own.

VACUUM OIL COMPANY, INC.

A SOCONY-VACUUM COMPANY

61 Broadway, New York City. Branches and distributors throughout the world.

Chicago Paper Market Practically Unchanged

Moderate Demand Experienced for Various Standard Grades of Fine Paper, With Small Orders Predominating—Kraft Wrapping Paper Prices Well Maintained—Following Usual Summer Dullness, Upward Trend Is Anticipated, In Some Quarters

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 4, 1932—An encouraging note was in evidence in reports from the Chicago paper market this week. The encouragement came, indicated the informers, from the fact that practically every market had held steady during the week and, while showing no particular improvement, was not back tracking in any noticeable instance. This leads some paper representatives to express the opinion that the paper trade, along with other lines, is now bumping along on the bottom of the decline, with possibilities that, following the summer dullness, more improvement—perhaps the beginning of the upward turn—will be prevalent in the Fall.

Each of the markets was characterized by inactivity during the week. Fine papers, indicated the reports, were still getting along with small demand and smaller orders, with prices showing no particular indication of any waywardness. In ground woods the demand was reported slow, with mills fashioning their operations to meet buyers' wants. News print was unchanged and seems to have hit a more or less stable level until newspapers begin to feel the business stimulus that has long been expected. Kraft papers remained firm in price, though demand reported by jobbers and convertors was slow, along with collections. Waste papers remained inactive. Books and covers were in the same category. There were plenty of reports indicating that Chicago jobbers and all paper representatives were doing all within their power to move business along at a normal plane and to keep a semblance of order in all lines.

Paperboard Association's Activities

One of the most important statements contained in the report of the Paperboard Industries Association meeting held at French Lick Springs late in May was that made by President Henry D. Schmidt in his address. An excerpt was as follows: "Maybe we are not satisfied with our present volume. Then why not try some new fields? Everyone wants economy today. Surely our fiber containers are the cheapest containers. Our sales promotion work has always been confined to studying industries which may produce real volume. But who is rapping on the door of the thousands of smaller plants who have not yet been told the advantages of fiber containers That's a job for our salesmen. Why not have them finish the day in each community after they have seen all the big buyers?"

The comprehensive report of the meetings held May 17 to 19 contained specific statements on the gatherings of the Folding Box, Container and Paperboard groups and in each of these the sentiment was clearly expressed that the situation facing the industry is beyond the control of any individual or any group of manufacturers and that these difficulties can be solved only through cooperative effort on the part of all factors in the industry. The possibilities for betterment of these conditions were very thoroughly discussed and plans put under way for improvement.

Included in the report was a statement relative to the wide publicity given to the Waste Paper specifications adopted jointly by the Paperboard Group and the Waste Paper Institute.

Resolutions were submitted, adopted and extended on the deaths of Russell K. Ramsey, vice-president and counsel of the Hinde & Dauch Paper Company and of F. W. Wagner, president of the Eastern Box Company.

City Sealer to Address Paper Merchants

The Chicago Paper Association will hold a special dinner and business meeting on the evening of Monday, June 6, at the Bismarck Hotel. Invitations have been extended to a number of those interested in the coarse paper market who are not members of the association. The City Sealer of Chicago, Mr. Joe Grein, will be the guest of the evening and the main speaker on the program. He is confidently expected to develop many interesting features regarding weights and measures and his discussion is looked forward to with a great deal of interest.

On Monday afternoon, prior to the meeting, several members of the association are getting together to further discuss the possibility of joining the National Paper Trade Association. The secretary of the national group, C. S. Spaulding, will be present to outline some of the benefits of affiliation with the National Paper Trade Association. If the opportunity presents itself, the matter of joining with the national group will be presented to the Chicago Paper Association at the evening meeting.

Paper Salesmen to Meet

A meeting on Monday, June 6, and another on the following week will wind up the regular weekly sessions of the Middle West Division of the Salesmen's Association of the Paper Industry for the summer months. At neither of these meetings will there be any special programs, the salesmen preferring to take the opportunity to discuss the situation in various lines; to exchange viewpoints and, in general, to better equip themselves to cope with the existing situation. Such round table discussion and interchange of views has, say paper salesmen, been of genuine help during the trying months of 1932. The salesmen will, however, not absolutely isolate themselves from each other during the hot weather months, for the regular monthly golf tournaments will go ahead under the able direction of Courtney Reeves, of the Allied Paper Company, chairman of this popular activity. The second of the series of events will be held on June 17 at the Sunset Ridge Country Club and guests and friends are cordially invited to take note of the date and place. Further particulars and information may be obtained from Mr. Reeves, at 400 West Madison street.

Ernest B. Eddy Resigns

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., June 3, 1932.—Announcement is made of the resignation of Ernest B. Eddy as general manager of the National Paper Products Company and although retiring from active duty he will continue to serve in an advisory capacity. He has been connected with the paper industry in Northern New York for many years and before coming here in 1905 held a similar position at the Deferiet mill of the St. Regis Paper Company. Charles A. Brondona, assistant manager, is now supervising activities at the plant.

The TERRY Steam Turbine Co.

TERRY SQUARE, · · HARTFORD, CONNECTICUT

DISTRICT OFFICES

ATLANTA, GA.
BOSTON, MASS.
BUFFALO, N. Y.
CHARLOTTE, N. C.
CHICAGO, ILL.
CINCINNATI, OHIO
CLEVELAND, OHIO
DALLAS, TEXAS
DENVER, COLO.
DETROIT, MICH.
GRAND RAPIDS, MICH.
HAVANA, CUBA
HOUSTON, TEXAS
KANSAS CITY, MO.
LONDON, ENGLAND
LOS ANGELES, CALIF.
MEMPHIS, TENN.
MILWAUKEE, WIS.
MINNEAPOLIS, MINN.
MONTREAL, QUEBEC
NEW HAVEN, CONN.
NEW ORLEANS, LA.
NEW YORK, N. Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.
PORTLAND, OREGON
RICHMOND, VA.
ST. LOUIS, MO.
SAN ANTONIO, TEXAS
SAN FRANCISCO, CALIF.
SYRACUSE, N. Y.
TORONTO, ONTARIO
TULSA, OKLA.
WILKES-BARRE, PA.

PRODUCTS

STEAM TURBINES — **HERRINGBONE GEARS** — **TURBO-GENERATOR UNITS, ETC.** — **FLEXIBLE SHAFT COUPLINGS**

TERRY STEAM TURBINES:

Each Terry Turbine is specially designed for the conditions under which it will operate. Therefore, in writing for information, the following data should be included so that we can offer the turbine best suited to your conditions: (1) Steam pressure available at the turbine inlet. (2) Temperature of steam. (3) Exhaust steam pressure. (4) Horsepower required. (5) Revolutions per minute at which driven machine will operate. (6) Make, size and type of machine which turbine will drive and any special details or requirements.

Indestructible one-piece steel Terry Turbine Wheel

APPLICATIONS:

Terry Turbines are used to drive centrifugal pumps, blowers, fans, generators, exciters, coal pulverizers, paper machines, line shafting and many other types of apparatus. Vertical turbines are used to drive deep well pumps, blowers, etc.

SIZES AND TYPES:

All sizes up to 2000 H.P. and for all steam pressures and exhaust pressures. Built for condensing, non-condensing, low pressure, mixed pressure and bleeder operation. Turbine may be either direct connected to driven machine or through Terry herringbone gears. Vertical turbines in capacities up to 600 H.P. are also available.

TERRY MULTI-VELOCITY STAGE TURBINES — Durable and trouble proof:

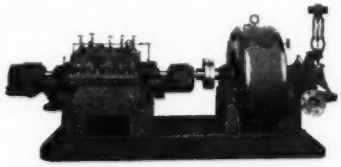
Employ an indestructible one-piece wheel made from a steel forging. The buckets are milled from the solid metal. The power producing action of the steam in the wheel takes place entirely on the curved surfaces at the back of the buckets. Wear at this point does not affect the angle at which the steam enters or leaves the wheel. **Therefore, these turbines will maintain their original capacity for years.** Blades have large clearances and are further protected by projecting rims at the sides of the wheel. It is impossible for the blades to foul. High efficiencies are obtained even at low speeds. Bulletin S-84.

TERRY MULTI-PRESSURE STAGE TURBINES:

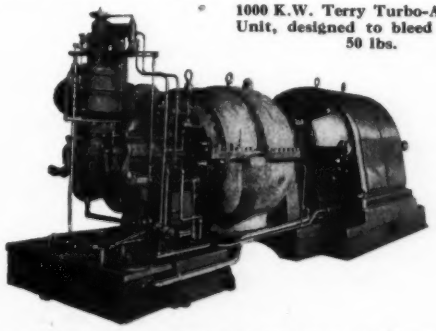
Employ a high pressure and low pressure element. High pressure element consists of a two or three-row velocity wheel; low pressure element consists of several stages of the Rateau type. Machines are so designed that the correct number of stages can be used to fit exactly the conditions under which turbine will operate. Bulletin S-80.

GOVERNORS AND CONTROL MECHANISMS:

Turbines may be equipped with various types of governors: (A) Constant speed, either direct acting or oil relay type. (B) Variable speed hydraulic fluid. (C) Overspeed trip. All Terry overspeed governors include entirely separate tripping mechanism and separate overspeed valve. They are in no way connected with main governor valve. (D) Pump governors, constant or excess pressure type. (E) Remote speed control mechanisms can be supplied so that turbine speed can be controlled from some distant point. (F) Governors to meet special requirements can also be designed. Tell us your problems and we will assist in their solution.



Boiler Feed Pump with Terry Turbine Drive, equipped with excess pressure pump governor



1000 K.W. Terry Turbo-Alternator Unit, designed to bleed steam at 50 lbs.

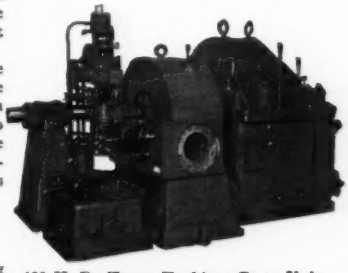
TERRY TURBO-GENERATOR UNITS:

Made in all sizes from 3 to 1000 K.W. d.c. or a.c. Geared or direct connected. Units may be designed for bleeder pressures or back pressures of 100 lbs. or over. The exhaust steam is clean and free from oil. It may be used for all types of heating and process work.

VARIABLE SPEED TURBINES:

Are the result of many years of experience in supplying variable speed drives for paper machines — a service that is extremely exacting due to the accurate governing that is required at all speeds.

Units are equipped with the Terry Hydraulic Fluid Type Governor. This mechanism permits the turbine speed to be varied throughout a wide range while the unit is in operation. Accurate governing is obtained at all speeds.



600 H. P. Terry Turbine Gear Unit. Equipped with variable speed governor and remote speed control

TERRY HERRINGBONE GEARS:

Used for speed increasing or reducing.

Gears and pinions are double helical type. No end thrust. Forced feed lubrication throughout. Oil pump below normal oil level insuring copious lubrication when starting. Bearings and gear housing are of extremely rugged construction. Cool, quiet, efficient. Specially designed for high speed service. Conservatively rated. Bulletin S-17.

Forged Steel Shaft Coupling

TERRY FLEXIBLE COUPLING:

High grade, accurately constructed coupling of pin and bushing type. Faces and peripheries of coupling flanges are accurately ground to facilitate checking alignment. Flanges are made from steel forgings. Sizes from 1 to 12 in. maximum shaft bore. When making inquiries, state diameter of shaft, revolutions per minute, horsepower transmitted and type of machines to be connected. Bulletin S-66.

New System Developed to Eliminate Pitch

Otto Brauns, Technical Engineer of Abitibi Power & Paper Co., Develops Method Now In Use At Sault Ste. Marie Mill, Which Means Greater Percentage of Balsam and Jack Pine Can Be Used Than Formerly—Experiments Carried Out for Past Ten Years

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 6, 1932—Through research work extending over a period of years a Sault Ste. Marie, Ont., resident, Otto Brauns, technical engineer of the Abitibi Power and Paper Company, has developed a system that eliminates pitch trouble from the manufacture of paper from pulpwood. The development of the new system, now in operation at the Sault mill, will mean that a much greater percentage of balsam and jack pine can be used than formerly. Only ten per cent of these woods could be used, as compared with spruce, and development of the new system may mean that the more resinous balsams and jack pines of the district can be utilized to advantage.

Apart from working out a system that eliminates pitch troubles in the pulp mills, a source of trouble that has hitherto cost thousands of dollars because of shut downs while pitch was scraped from paper making machinery, Mr. Brauns has won the Weldon Gold Medal, presented yearly for the best paper submitted by the technical section of the Canadian Pulp and Paper Association.

C. D. Howe, Dean of the Faculty of Forestry at the University of Toronto, stated that if the system eliminated pitch from jack pine to such an extent that news print could be made from the pulp, it would be a big thing for the North country. Experiments on this line have been carried out for the past ten years, he said, and people interested have always felt that such a system would eventually be developed. Jack pine and balsam are being used to some extent in the manufacture of ordinary paper, such as wrapping paper, he said.

Air Firms Help Protect Pulp

Six commercial flying concerns have entered into an agreement with the Ontario Department of Lands and Forests for the use of their machines to cooperate with the Provincial Air Service in pulpwood fire-suppression work when their services are required. This agreement has been made in view of the cutting down of the Government flying service under the economy wave, and in order to assist in the present fire situation in Northern Ontario and Quebec. These machines will be paid for on a ton-mile not on a flying hour basis and will always be subject to call. During the recent bad fire in the Timagami area machines were standing by ready to join the forestry protective corps if called upon. In that fire $25,000,000 worth of white pine stands were threatened but rain came in time and saved them.

Where to Get Canadian Products

Despite the fact that the manufacture of pulp and paper is one of Canada's major industries, the annual imports of paper in a further manufactured state are quite large. The purpose of the Industrial Map of the Converted Paper Products Industry, which has just been issued by the Dominion Department of the Interior, is to show where many of these products are now being manufactured in Canada, and it is hoped thereby to indicate along what lines the industry can be developed in order to obviate, in part, the appreciable imports. The map shows the location of the plants and the list accompanying it gives the names and addresses of the manufacturers of paper bags, paper boxes, other articles of paper and cardboard, as well as of further processed papers like waxed paper. Such figures of production, imports and exports as are available for individual items have been included on a separate sheet.

U. S. Mills Place Pulpwood Orders

It is expected that between $65,000 and $70,000 will be distributed among farmers of the Thunder Bay district this summer as the result of orders for pulpwood just obtained from mills in the Eastern States by the Hammermill Paper Company and the Oscar Styffe Company at Port Arthur. The Oscar Styffe Company has announced that it is in the market for all the sap-peeled spruce and balsam pulpwood of the 1930 and 1931 cuts that district farmers can supply, and the Hammermill company has announced contracts made with district farmers for 12,000 cords of spruce pulpwood at $7.50 per cord. The Styffe company will pay $5 for spruce and $4.50 for balsam. The Hammermill company will buy only wood of recent cut.

Abitibi Defers Bond Interest Due

Interest on the first mortgage bonds of Abitibi Power and Paper Company, Ltd., was due on June 1, but it will not be paid for the present, and until arrangements concerning one of the company's subsidiaries have been completed, it was announced following a meeting of the directors in Toronto this week. Directors of the company reached the decision to defer the bond interest on the organization's five per cent gold bonds outstanding to the amount of $48,267,000 as at April 30 this year. The interest due on June 1 was over $1,000,000 and is payable in United States funds. Financing in connection with operations of the Ontario Power Service Corporation, an Abitibi subsidiary, is understood to have been under consideration at the meeting of directors but no announcement concerning it was made after the meeting.

Notes and Jottings of the Trade

With authority to engage in pulp manufacture, Smith Planing Mills, Ltd., headquarters in Essex County, Ont., has been granted an Ontario charter. The capital stock is $60,000.

The main line shaft drive of the Lybster mill of Alliance Paper Company, at Merritton, Ont., came down with a crash recently. One of the large pulleys broke and crashed into one of the east end windows and following this the whole line shaft came down. Fortunately the workmen had a chance to escape and no one was injured. It took a couple of weeks to repair the damage.

It is reported that the National Steel Car Corporation, Montreal, has become closely affiliated with the William Hamilton Company, Ltd., one of the oldest and largest companies in Peterborough, Ont. The production of the two companies is closely co-ordinated and benefits are expected to arise from the increased merchandising scope which attends the affiliation. The William Hamilton Company is engaged in manufacturing equipment for the pulp and paper and mining industries.

Fred W. Halls, of the Fred W. Halls Paper Company, Toronto, has returned from a few weeks holiday spent in Bermuda.

How to Find New Markets

One way is to develop new products. *New markets will be found waiting.*

Another way is to improve the quality of your present products. *New markets will be found waiting.*

Still another way is to reduce the cost of your products through new, advanced methods of manufacture. *New markets will be found waiting.*

How can these things be accomplished?

The surest and most practical way is by means of a fully equipped laboratory in which test runs comparable to actual mill runs can be made.

With a modern laboratory — you can test out new ideas, new methods, new products, etc., and inspire a *motivating force* of creative development to keep your mill forging ahead. You must either do this or be satisfied to take what is left along the highway of progress blazed by the research departments of other mills.

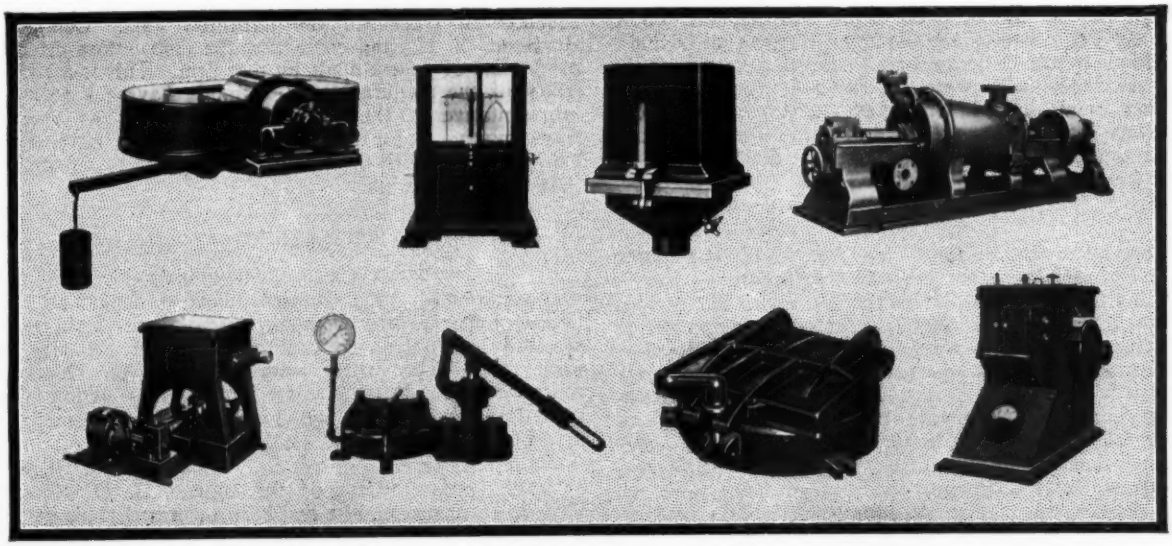
Some interesting improvements have been made recently in Valley Laboratory Equipment. Let us send you full information, including a comprehensive bulletin setting forth the functions of a modern paper mill laboratory. Address the Valley Iron Works Company, Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

Plant: Appleton, Wisconsin

New York Office: 350 Madison Ave.
Western Office: 1251 East 21st street, Portland, Oregon
Canadian Representatives: Pulp & Paper Mill Accessories Ltd., Montreal, Canada



Beater Sheet Mould — *Hydraulic Press Hot Plate* — *Size Tester Drying Oven* — *Plain Flat Screen Couch Roll* — *Jordan Four Section Fractionating Screen*

Philadelphia Paper Market Drifting Along

Various Standard Grades of Paper Arousing Little Interest At Present—Kraft Wrapping Paper Market, However, Continues to Exhibit Steadiness—Demand for Summer Specialties Fairly Persistent, With Shipments Moving In Good Volume

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 6, 1932—Though the local paper market continues to drift in so far as general business is concerned, sanitary specialties for the hot weather are in demand, with shipments holding well to a normal volume. General paper products of standard consumption, however, show lack of interest. The kraft market continues steady while food wraps, glassine and cellophane bags, and other papers used by food manufacturers, such as wax and grease proof lines, have shown slight improvement.

Lindsay Paper Co. Receivership

Following the death of J. Horace Lindsay, the Lindsay Paper Company, 804 Sansom street, is being adjusted under receivership. Howard Satterthwaite, of the Satterthwaite-Cobaugh Company, who is to represent the mills involved as creditors has been appointed receiver. There are several paper manufacturers in the list of creditors and Mr. Satterthwaite will continue to operate the business to the best interest of those concerned under advisement of the mill associates upon whose request he was appointed. The stocks on hand will be appraised by Norbert A. Considine, head of the Paper House of Pennsylvania, who has been made official appraiser.

Allen Whiting Wins Golf Prize

Returned from the Spring meeting of the National Envelope Manufacturers' Association held at Lake Wawassee, Ind., in the last week of May, Allen E. Whiting, head of the Whiting Patterson Company, 320 North 13th street, brought to the Quaker City the President's Cup award for the low net of 69 scored in the Golf Tournament held during the convention. E. B. Berkowitz, of the Berkowitz Envelope Company, Kansas City, Mo., captured the Secretary's Cup for the low gross in the Tournament. There were seventy concerns represented. Reports on business conditions by the envelope manufacturers generally at the business conferences were of gradually improving and steadier trend. Harold Smith, of the Western Envelope Company, Kansas City, president of the National Envelope Manufacturers' Association, presided at the business sessions, held in the Lake Wawassee Hotel.

Jobbers Hold Special Meeting

A special session of the Credit Interchange Committee of the Philadelphia Paper Jobbers' Association was held at the Elks Club for the purpose of discussing the various systems of credit interchange laid before the group and to be inaugurated into its program for the future welfare of the members. Those who attended the Credit Interchange Committee discussion were: Charles Resnick, Resnick Paper Company, chairman; B. M. Roseman, Federal Paper Company; Jack Zacher, Atlas Paper Company; Frank Dubin, Dubin Paper Company, and Lewis Gerber, Enterprise Paper Company.

E. Latimer Jr. to Make Wax Rolls

E. Latimer, Jr., head of the paper concern bearing his name, has installed a wax converting department in his establishment and enhanced and reorganized the fine paper staff, adding new lines to the stock. In the lately opened wax converting department there has been installed a new Schultz rewinding machine, made by the Schultz Machine Company, Brooklyn, N. Y. This machine is of the latest automatic type for making wax rolls in the patented automatic cutter edge box and is capable of turning out from 6000 to 7000 rolls of waxed paper per day. The sales reorganization includes addition of Jack Loose, Frank Scott Atkinson, and Howard Sloss to the staff. All are well known in the trade and have been connected with other paper houses. Among the additions to the lines of papers that now are stocked are Penn Index, made by the Chemical Paper Company and bond papers made by the Hampshire Paper Company.

Garrett-Buchanan Co. Opens Felt Division

The Garrett-Buchanan Company has opened a deadening felt department under management of Otto M. Steinman, who for more than a decade has been linked with the Philadelphia trade and for thirty years has been associated with the importing business, featuring German papers. The new department is featuring deadening felts for floor covering and building purposes. The Felt Division comes under the supervision of Joseph Weaver, manager of the wrapping paper section of the Garrett-Buchanan Company.

Fire at Container Plant

Fire which started in a drying machine menaced, for a time, the huge paper making machine, in the No. 6 building of the Container Corporation of America mills in Manayunk. The fire, starting in the drying machine, spread quickly but was kept in check until the arrival of firemen from the Manayunk and Roxboro districts.

Groveton Paper Co. Changes

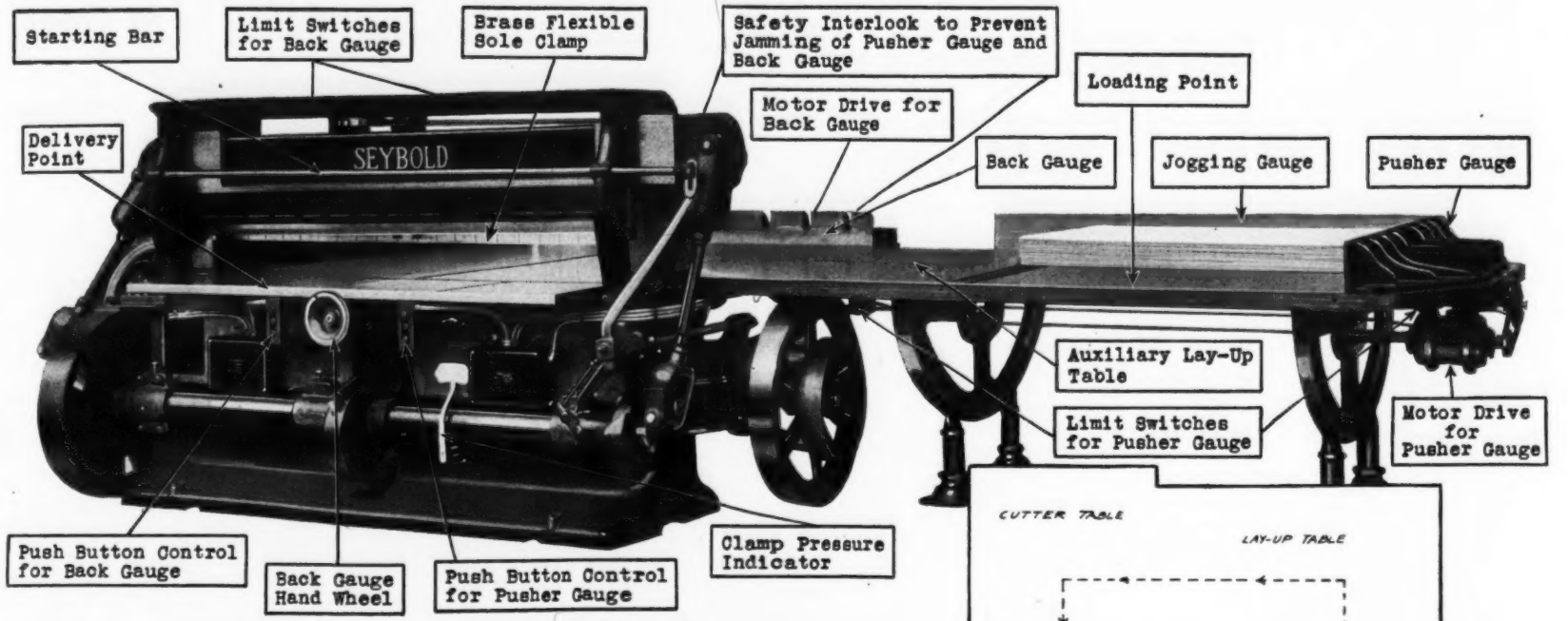
R. Harry Reid, has been making the rounds of the Philadelphia trade for the Groveton Paper Company, Groveton, N. H., and contacting the distributors directly on the line of papers made by that firm. This is a recent policy of the manufacturers, formerly having a resident representative in the Philadelphia trade. The former representative was Frederick I. Brower, who has severed his association with the Groveton company, to devote his time to other mill lines.

Mill at Wabash To Continue

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 6, 1932—Officials of the United Paper Board Company at Wabash, Ind., have received instructions to continue the operation of the plant there. The orders were issued by the chancery court of New Jersey, where receivership action was started several months ago by officials of the company to protect the interest of stockholders.

While the operation orders say "for a period of 90 days or until further orders of the court," H. D. Newell, Wabash manager, said he had been informed there would be no effort to halt work at the end of this period. The Wabash plant is one of the largest of a number operated by the company. Some of the smaller ones will be closed under the receivership orders and the business from them devoted to the larger plants.



SEYBOLD AUTOMATIC CUTTER

with Lay-up Table

Doubles machine output ✓ No back tracking of work ✓ Saving in time ✓ Saving in labor ✓ Saving in floor space ✓ Saving in floor load ✓ Saving in connected power load ✓ Less handling of work No clamp bar obstruction when loading table ✓ Made in all ream trimmer sizes ✓ Power movement of stock ✓ Push button control

SEYBOLD SALES AGENCIES IN PRINCIPAL CITIES—*in New York:* E. P. Lawson Co., Inc., 424 West 33rd St.; *in Chicago:* Chas. N. Stevens Co., 112 West Harrison St.; *in Atlanta:* J. H. Shroeter & Brother, 225 Central Ave.; *in Dallas:* American Type Founders Co., 1102 Commerce St.; *in Oklahoma City:* Western Newspaper Union, Second and Harvey Sts.; *Pacific Coast and British Columbia:* Harry W. Brintnall Co., 51 Clementina St., San Francisco; *Canada:* Toronto Type Founders Co., Ltd., 120 Wellington St., Toronto; J. L. Morrison Co., 445 King St. West, Toronto

SEYBOLD MACHINE COMPANY • DAYTON, OHIO A division of Harris-Seybold-Potter Co.

Obituary

Carl Garfield Pritchard

Carl Garfield Pritchard, secretary and treasurer of the Harris-Seybold-Potter Company, and well known for many years in the paper industry throughout the United States and Canada, died Friday, May 13, after a brief illness. Mr. Pritchard was born November 27, 1870, and was a descendant of an early pioneer family of the Western Reserve.

He became associated with the Harris-Seybold-Potter Company in December, 1898. For many years he was secretary and assistant treasurer of the company, and early in 1931 was made treasurer of the corporation in addition to his duties as secretary.

Mr. Pritchard was active in the work of the Christian Church of Hiram, and in the interests of Hiram College. He was prominent in civic affairs and was recently Mayor of Hiram.

He is survived by his widow, Mrs. Willma Pritchard, and two sons, Walter Stanley, who is associated with the Ohio Bell Telephone Company; and Howard, who is employed in the Harris-Seybold-Potter organization. Funeral services were from the Hiram Christian Church, Sunday, May 15.

John D. Babcock

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 21, 1932.—Announcement is made of the death of John D. Babcock, 32 years of age, vice president of the Wisconsin River Paper and Pulp Company, with mills at Stevens Point, Wis., and offices at Neenah, Wis. He was a son of C. A. Babcock, president of the company. Death occurred May 15 at Presbyterian Hospital, Chicago.

Mr. Babcock was stricken with a mastoid disease in February and was taken to the Chicago hospital, where four operations had since been performed. Spinal meningitis developed recently and was the immediate cause of his death. His widow, one daughter a year old, and his father, survive.

Mr. Babcock was a graduate of the University of Wisconsin and also studied at Harvard University before associating himself with his father in the Wisconsin River mill. He spent two years working in the mill to learn paper manufacture and about four years ago entered the offices at Neenah to assume the vice presidency. He was prominent in the social life of the Fox River Valley.

Burial took place at Oak Hill Cemetery, Neenah.

Clarence Beebe

Clarence Beebe, well known in the paper industry for more than sixty years, died May 25. Mr. Beebe was on the sales staff of Neumeyer & Dimond, mill equipment supplies, of 82 Beaver street, New York. He was eighty years old and was the twin brother of Charles Beebe, formerly manager of the Union Talc Company, who died about one year ago.

Ernest H. Braukman

[FROM OUR REGULAR CORRESPONDENT]

DENVER, Col., June 4, 1932—Ernest H. Braukman, president of the Continental Paper Products Company, Denver, Col., died June 1. Mr. Braukman came to Denver some years ago, having been one of the organizers of the Cleveland-Akron Bag Company and the Bankers Supply Company, the latter a Denver concern. He sold his interest in the Bankers and organized the Continental in 1925.

From the beginning of his residence in Denver he gave largely of his fortune to religious and educational institutions. He was a member of the Rotary Club of Denver, Denver Athletic Club, Chamber of Commerce, and the Y.M.C.A. He is survived by his widow, two sons and one daughter. He was a native of Worcester, Mass.

Henry Griffith Keasby

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 31, 1932—Henry Griffith Keasby, a member of the firm of Keasby & Mattison, Ambler, Pa., died today, in his apartment in the Barclay Hotel, of heart disease. He would have been 82 years old tomorrow. Mr. Keasby was one of the pioneer asbestos manufacturers in this country. He was a native of this city and shortly after his graduation from the Philadelphia College of Pharmacy in 1873 he joined with a class mate, Dr. Richard V. Mattison, in the manufacture of pharmaceuticals and chemicals. Later the firm moved to Ambler, near Philadelphia, and concentrated on the manufacture of asbestos.

In 1892, he retired from active participation in the business when the firm was incorporated. Since then he has spent much of his time in traveling abroad. Through collection of antiques, he at one time attracted widespread attention as the owner of a noted collection of armor, but disposed of the treasure several years ago. He was a member of the Antiquarian Society of London. Mr. Keasby was a widower and is survived by a son and three daughters.

New Straw Cooking Method

Carbondel, a new cooking compound put out by the Improved Products Company, 3500 South Morgan street, Chicago, has been used very successfully in cooking straw in connection with lime and soda ash or caustic soda. This combination reduces the cooking time with a lower chemical cost, gives a high yield, and produces a much freer stock which speeds up production. Although this stock can be run over the machine with less previous washing, it saves in acid cost of cleaning the felts and requires fewer wash-ups. In several instances, less steam was needed to dry the sheet which came off the machine harder and with a higher finish. The sheet has a higher pop test and crushing test than the sheet from straw cooked in the usual manner. Laboratory experiments have shown that Corbondel will cook other fibrous materials and wood pulp as well.

These results would indicate that this product is well worth an investigation by those interested and that it has a definite place in the paper industry.

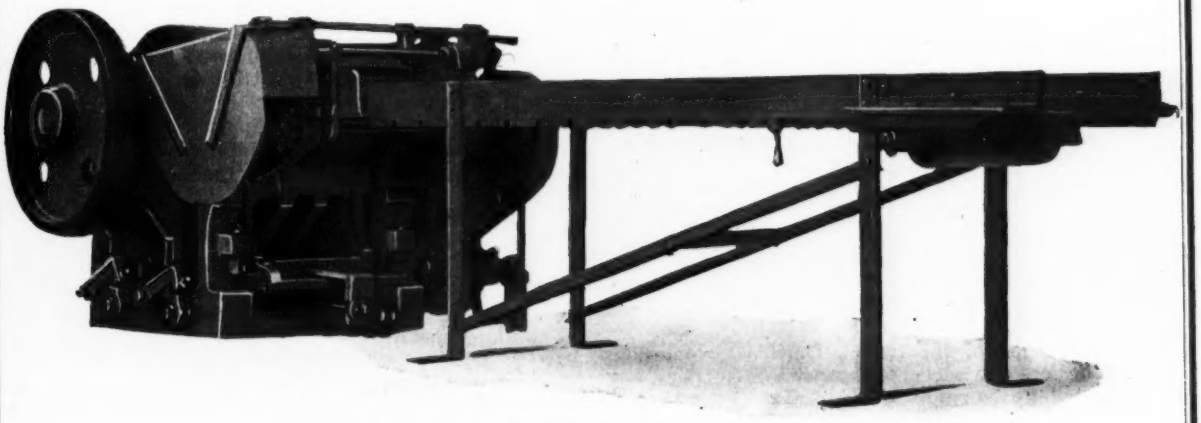
Boston Paper Market Fairly Active

BOSTON, Mass., June 6, 1932.—Sustaining the improvement which developed during May, the wholesale paper market appears to be in a fairly healthy condition, with the trade generally cheerful. "Business is not too bad in view of the fact that we are getting into the summer months," is the thought expressed by a member of one of the large fine paper organizations. Manufacturers continue to offer new lines. Bonds and ledgers are moving in about the same volume. Fancy papers and paper specialties have been in fair demand. An average amount of wrapping paper is called for. Box boards remain in moderate request. Paper stock continues lethargic, with the price tendency still downward. Rags have been so quiet that lower prices are paid by mills to dealers.

Is your cutting equipment up to date?

. . . . . does it need overhauling or repairs?
Or would it be more economical to install the
newest and most efficient of Cutters? . . .
Production Managers are invited to take up
their specific problems with us so that we
may help them to get the greatest amount of
work done at the lowest operating cost.

TAYLOR, STILES & COMPANY



The Latest No. 20 Multiplex "Giant" Cutter

Capacity 5 Tons per Hour . . . Main Bearings S.K.F. Roller Type . . . Direct Connection to Motor Through Shearing Flexible Coupling . . . Improved Overhead Swung Feed . . . All Small Bearings Bronze-Graphite Bushed . . . And Alemite Fitted . . . Very Economical of Power . . . Easy of Adjustment . . . Built for hard, continuous Service . . .

★ ★

PULP SHREDDERS DISC CHOPPERS
LITTLE GIANT PAPER SHREDDERS
ROLL BARS BED PLATES

RAG CUTTER KNIVES

★ ★

TAYLOR, STILES & COMPANY
RIEGELSVILLE, N. J., U. S. A.

Waterous Engine Works Co., Ltd.
Brantford, Ont., Canada
Canadian Representative

R. J. MARX
133 Finsbury Pavement,
London E.C.2
Sole Agents for Europe

New York Trade Jottings

Macolite Products Corporation, of New York, N. Y., paper, card board, etc., has been incorporated under the laws of the State of Delaware, with a capital stock of 200,000 common shares.

* * *

The regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry was held on Monday last at the Hotel Roosevelt, New York. Prevailing business conditions were freely discussed by those present.

* * *

The Chemists' Club will hold its first golf tournament at Rye, N. Y., on Thursday, June 30. Plans for the competition include the service of luncheon and dinner at the Rye club and the awarding of prizes. Robert J. Quinn, of Mathieson Alkali Works, 250 Park Avenue, New York, has special charge of the event.

* * *

Paper manufacturers will be interested to learn that the Charles F. Noyes Company, Inc., has leased for a long term of years the entire thirty-third and thirty-fourth floors of 116 John street, New York, to the Fire Companies' Adjustment Bureau, Inc., a nation wide adjusting organization owned by 225 stock fire insurance companies, members of the National Board of Fire Underwriters, writing approximately 90 per cent of the net fire and lightning premiums in the United States. Paul L. Haid is president, C. F. Shallcross, vice-president and W. E. Mallalieu, secretary-treasurer. George W. Lilly, formerly of Chicago, Ill., is manager, and W. E. Hill, previously with the National Board of Fire Underwriters, is assistant manager.

* * *

The organization of the Lincoln-Derrico Corporation, wholesale dealers and packers of paper mill supplies, has been perfected, as the result of the merger of the Lincoln Paper Stock Company, Inc., and the Derrico Company, Inc. The Lincoln Paper Stock Company had been in business since 1918 under the direction of Anthony Nicoletti and J. Capozzolo. The Derrico Company had been in business for the past thirty years under the direction of G. Derrico and G. A. Derrico. The officers of the Lincoln-Derrico Corporation are: Anthony Nicoletti, president; G. A. Derrico, vice-president; J. Derrico, treasurer, and J. Capozzolo, secretary. The new corporation is chartered under the laws of the State of New York with a paid in capital of $50,000 preferred stock. Offices and warehouse are located at 2201-2209 Madison avenue, New York, occupying 40,000 square feet of ground floor space. The plant is located on the Harlem River, with water front, and is equipped to take care of loading and unloading three barges at one time. The corporation plans to pack and grade all grades of rags and paper stock suitable for paper mill use.

New Compensator for Paper Bag Machines

The Smith & Winchester Manufacturing Company recently put into successful operation at the Hammond Bag and Paper Company, Wellsburg, W. Va., a full automatic compensating device for their tubers. It is an entirely automatic compensator for use where printing is done on rolls and the paper is then rolled up before being put through the tuber machines. It replaces all old hand-operated compensating devices which have proved unsatisfactory at high speeds.

Indianapolis Outlook Improves

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 6, 1932—The coming of hot weather has stimulated some lines of paper business here. All summer specialties have been moving with considerable more activity and the outlook is more favorable than it has been for some time. The low stocks of these grades in consumers' hands has made it imperative for them to buy with the coming of any demand. They continue to keep their stocks low, but their orders are more active, even if for small individual amounts.

Business in the container field has brightened materially. There is a steady demand and in some of the Indiana factories production is at a higher level than for some time. From present indications there will be a continued good demand during the next three months at least. One reason for this situation, some say, is the increasing number of uses being found for paper containers.

Jobbers here of such items as bags for the cleaning trade and also for other uses, say business is fairly good. As compared with last year, the volume being sold will compare very favorably. Merchandise is being sold on as close a margin as possible and the percentage of cash business is large as compared with two years ago. Substantial discounts for cash and restriction of credits on the part of the jobbers have changed the situation from what it was. Judging from expressions both of users and jobbers, the trend toward cash buying is meeting with favor. Users are getting lower prices and jobbers are able to cut down their office expense.

Demand for fine papers is none too healthy. Orders for relatively small amounts are being received. The news print situation shows no change. Volume is not heavy due it is said to restricted local advertising. Most of the large national advertisers seem to be using space but the local trade has fallen down considerably. Paper stock men are doing but little business. Mill requirements are not satisfactory and the prices offered are particularly depressing.

Bids for Government Paper

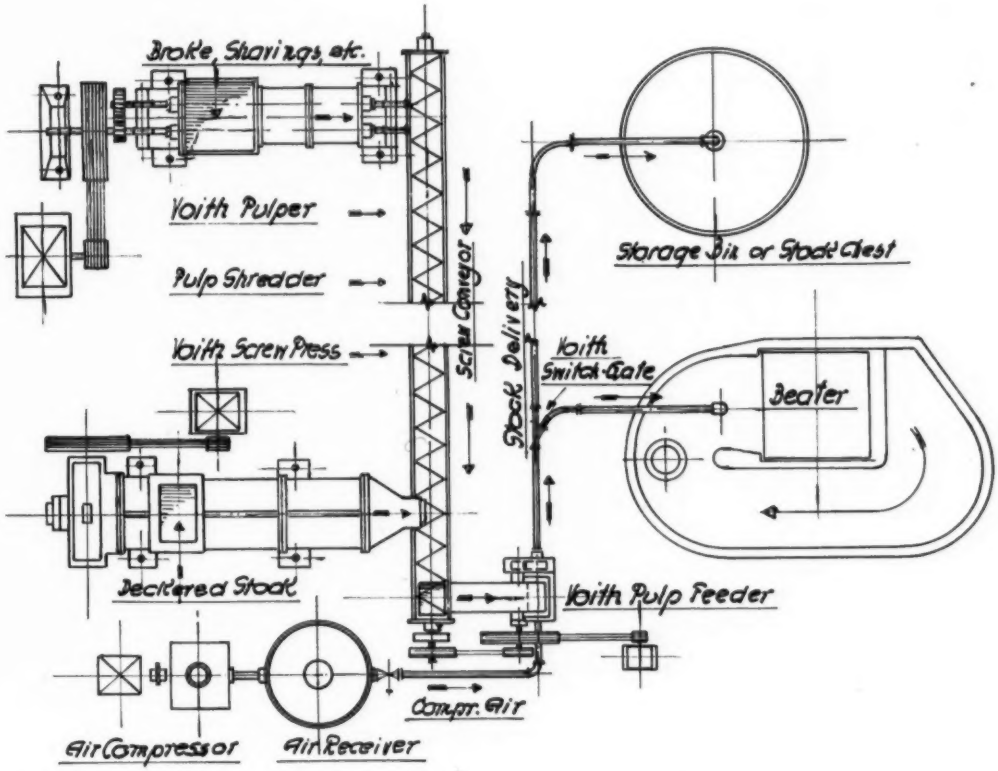
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 8, 1932—The Government Printing Office has received the following bids for 12,600 sheets of yellow gummed paper; R. P. Andrews Paper Company at $10.50 and $10.80 per ream; Copy Papers, Inc., $13.50; The Old Dominion Paper Company, $15.99; Whitaker Paper Company, $9.50; Walker Goulard Plehn Company, Inc., $9.28; Reese & Reese, Inc., $9.70; Charles G. Stott & Company, Inc., $10.44; and Mathers-Lamm Paper Company, $10.00, $10.55, $10.56, and $11.00.

The following bids were also received for 5,000 pounds of lined chipboard: Walker Goulard Plehn Company, Inc., 1.735 cents per pound; R. P. Andrews Paper Company, 1.75 cents; Barton Duer & Koch Paper Company, 1.75 cents; Virginia Paper Company, 1.75 cents; Mathers-Lamm Paper Company, 1.6975 cents; and The LaBoiteaux Company, 1.96 cents.

Sulphite Bond Quotations

An item in the May 12 issue of the PAPER TRADE JOURNAL mentioning reports of a sale of sulphite bond in the Chicago market at 3¼ cents has caused considerable comment. It appears that this sale did not apply to paper of standard quality and should, therefore, not be considered as representing the true market quotation.



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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

High Point, N. C.—The Carolina Container Company, Prospect road, manufacturer of corrugated fiber containers and boxes, has approved plans for construction of new one-story addition to plant, for increased output. It will be 80 x 120 feet, reported to cost over $30,000, with equipment. Work will be placed under way at once. I. P. Ingle is president.

Combined Locks, Wis.—The Combined Locks Paper Company has awarded general contract to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., for the erection of three new additions to mill, each one-story, 48 x 72 feet, 40 x 50 feet, and 60 x 180 feet. First noted buildings will be equipped as process units, with installation of tanks and other equipment, while last noted structure will be used for general storage and distributing service. Entire program is reported to cost over $75,000, with equipment. Work will be placed underway at once. W. K. Kolb is construction engineer for company.

Philadelphia, Pa.—The paper-making department at local plant of Container Corporation of America, Inc., Nixon street, near Fountain street, Manayunk, was slightly damaged by fire recently, which started in a drying machine in the building, used for production of paper boxes and containers. An official estimate of loss has not been announced. The damage will be replaced.

Minisink Hills, Pa.—The Analomink Paper Mills Corporation, Minisink Hills, Monroe County, has been organized to take over and succeed to the Analomink Paper Company, North Water Gap district, specializing in the production of manila and other wrapping paper stocks, tag and folder stocks, etc. The new company is headed by H. N. Kidd, Minisink Hills, and W. B. Eilenberger, Stroudsburg, Pa. Mr. Kidd will be the treasurer of the new company.

Kaukauna, Wis.—The Niesen Pulp Company, Kaukauna, is planning rebuilding of portion of mill, recently destroyed by fire. Two structures were damaged, with loss reported over $35,000, including equipment and stock.

Detroit, Mich.—The Detroit Sulphite Pulp and Paper Company, 9125 West Jefferson street, has asked bids for the installation of a new steel conveyor at its mill, concrete foundation, to be used for pulpwood service. Work will be placed under way at an early date.

Elkhart, Ind.—The Illinois Carton and Label Company, 2601 North Crawford avenue, Chicago, Ill., manufacturer of paper boxes and containers, and other paper products, has filed notice of organization under Ohio laws, to operate in Indiana, and has secured authority for such activity. The company has recently completed a new one-story plant at 914 South Main street, Elkhart, 130 x 200 feet, and will manufacture its specialties at that location. The plant is said to represent an investment over $70,000, with equipment.

Bloomfield, N. J.—Walter Kidde & Co., Inc., 60 West street, Bloomfield, architects and engineers, have preliminary plans under way for a new paper products plant to be constructed in the state, company name and exact location temporarily withheld. The plant will be used for the manufacture of corrugated paper board boxes and containers, and is reported to cost over $100,000, with equipment.

Valdosta, Ga.—R. A. Ashbury, care of Leslie C. Poole, Valdosta, is at the head of a project to construct and operate a local paper sizing mill, for which plans will soon be completed. Erection will be in charge of Mr. Poole. List of processing equipment for installation at mill is being arranged. Unit is reported to cost close to $30,000, for equipment. John Frederickson is interested in the enterprise.

Brooklyn, N. Y.—Universal Box, Inc., 148 39th street, manufacturer of paper boxes and containers, has arranged for change of company name to the Universal Folding Box Company.

Chicago, Ill.—The Diamond T Wax Paper Corporation, 112 North May street, recently organized with capital of $50,000, plans operation of a local plant for manufacture of wax paper and other processed paper stocks. The company is headed by M. J. and Fred C. Traver, and William F. Downing. It is represented by R. J. Beig, First National Bank Building.

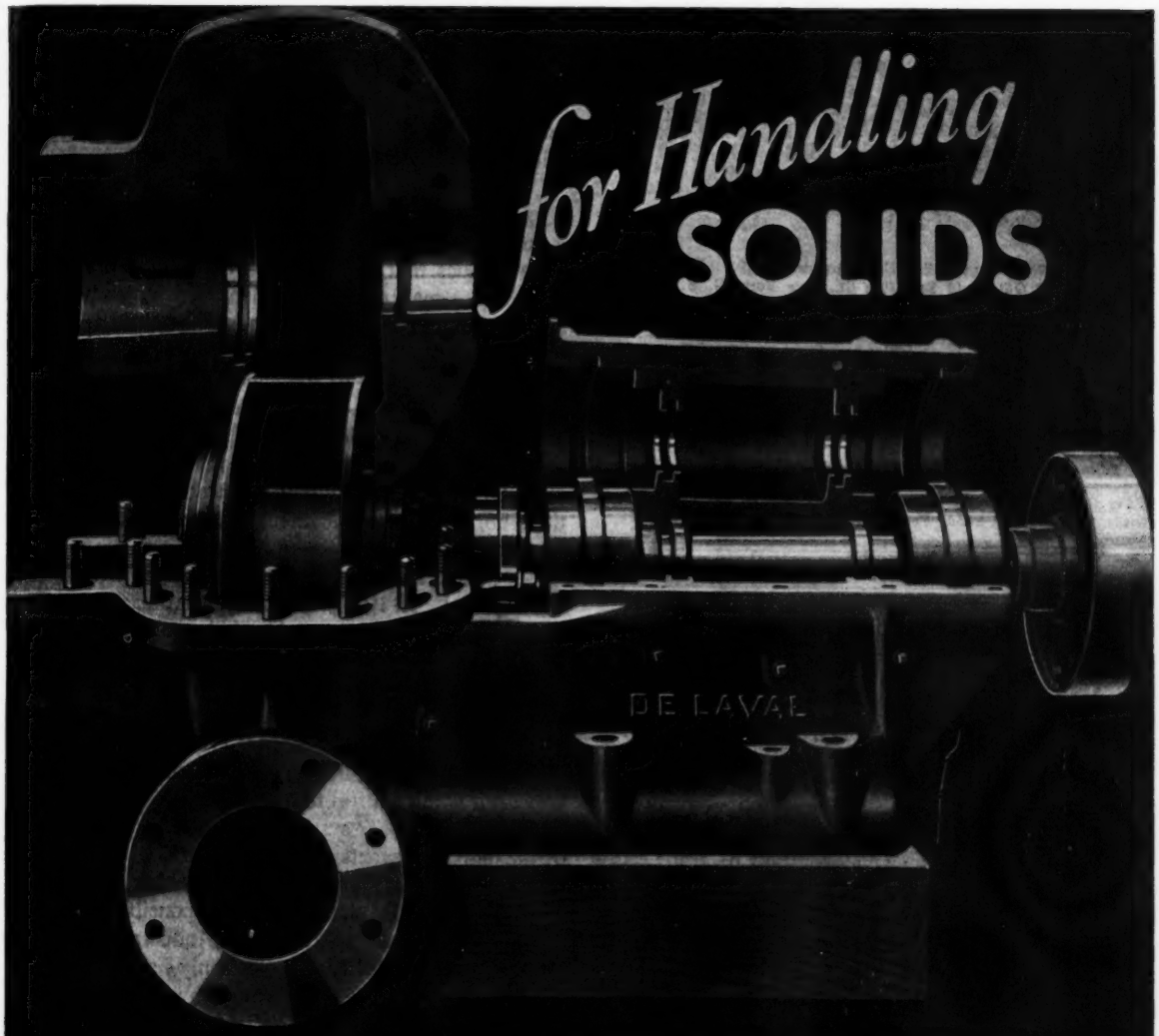
New Companies, Etc.

Los Angeles, Cal.—The Cellophane Products Company has been incorporated with a capital of $10,000, to operate a paper converting plant for cellophane specialties. The incorporators are Dwight S. and Preston F. Jones, and Charles C. Goodnow. The company is represented by Haskell & Martin, Heartwell Building, Long Beach, Cal., attorneys.

West Carthage, N. Y.—The Northern Bag and Paper Company, West Carthage, has filed notice of company dissolution under state laws.

Philadelphia, Pa.—Paper Convertors, 355 North Third street, has filed notice of organization to operate a local paper converting plant, particularly for cellophane materials. The company is headed by David Back, 4830 Hutchinson street, and Nathan D. Isem, 2002 North Eighth street.

Boston, Mass.—Bankers Card and Index Company, 216 High street, has filed notice of organization to manufacture and deal in paper products. John E. Arnold and David B. Coburn are heads.



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AMERICA'S HOPE: THE TRADE ASSOCIATION

In an interesting book entitled "Business and Public Interest," just published by the MacMillan Company, of New York, the author Benjamin A. Javits, a noted authority on the organization and operation of trade associations, calls the trade association America's hope. The author asserts that our whole industrial scheme must be coordinated toward a definite goal by a national economic council, controlled by industry itself and working through the modern trade association if an early solution of the present situation in business and industry is effected.

Slowly, but surely, Mr. Javits believes, American business is strangling in the noose of enforced competition. Walk through any business street and note the poignant signs: "Sacrifice Sale"—"Below Cost Sacrifice"—"No reasonable offer refused," and similar declarations of the complete abandonment of the first principle of Commerce: Profit Is Essential to Prosperity.

Every such sign and the condition it illustrates is indicative of the false economy under which American business is struggling today. Cut-throat competition is being fostered and enforced by government edict, or, at least, by interpretations of existing laws by government officials, and to a degee by businessmen themselves.

The crux of our business problem is to find a way for industry to make profits: i.e. to create new wealth to replace the wealth used up day by day, new wealth to be distributed by the industrial processes throughout the various strata of our industrio-civic organization.

Today, in almost any industry, a small minority can, by selling below cost (and similar business brigandage) upset the basic economic structure of the entire industry and throw all other members of the group into a position where they are forced to sell their products either at cost or at a loss to prevent "losing" their market. The minority is supported, if not actually forced to this position, by the common misinterpretation of Federal statutes, namely the anti-trust laws, and the fact that the Federal Trade Commission Act is not sufficiently enforced.

The result may be seen in hundreds of cases in industry in the last two years. Goods sold on street corners at a small part of production-cost, ties distributed at "distress" values that prevent bona fide factories from operating, trade-marked candies dispensed by street peddlers at a modicum of retail value and cutting into and destroying the legitimate market of the factory product of that industry: all because of the ridiculous fiat that there must be competition-to-the-death in American industry.

The result is a vicious circle. For, where any business concern is barely breaking even or operating at a loss, it cannot continue indefinitely to meet its financial obligations nor hold its employment scale and contribute to the national buying power.

For almost fifty years we have struggled with industrial development. In 1924 we stood at what many thought was the beginning of an era of stability. Harding called it "normalcy;" the author had the audacity to term it "a fast movie of a great American paradox" when for five years, despite international instability, domestic unemployment and an abysmally ignorant credit policy, the American people were led into a wild speculative orgy. What happened is too painful to be repeated. No greater indictment of our present "system" could be drawn than a recital of the march of events since October 1929.

Because it is afraid to organize itself and to justify its existence by willingness to accept responsibility and to discharge it constructively, American industry is faced with what may be a fatal crisis. The only hope of business is to organize itself *now*—under the laws as they stand.

If industry is not to be socialized, it must solve the problems of unemployment, both real and technological. Nor is that all. Industry must, at the same time, be constantly raising the standard of living so as to keep pace with our productive processes.

Yet every plan thus far suggested to effect these ends seems to run head on into the antiquated Sherman anti-trust law and its progeny, the Clayton Act and other statutes. American industrial leaders apparently have abdicated the positions gained through generations of acumen and adaptability. Sorely needed for constructive enterprise, they have been turning their efforts toward alleviating the effects of depression rather than toward lifting the depression itself.

The typical trade association furnishes the opportunity for finding the answer to the crying need of today. The basic law of the United States is not and cannot be against a plan which is *in the public interest.* Such a plan is immediately available, and completely within every legal decision yet rendered by our courts.

Political psychology may be living yet in an age when the making of corporate profits was regarded as prima facie a crime. But the author maintains that the public conscience and consciousness has been weaned from that at-

titude by the stress of the last two years. There is a readiness now to accept the theory that the national economy is a unit, requiring soundness in all its parts to remain basically healthy, and that industry can take the reins of initiative and power with every guarantee of public sanction and approval!

The trade association offers a medium through which industry can act, to its own and the public benefit and to the satisfaction of any law now existing.

It is only necessary that an association be formed which is so manifestly for the service and protection of public interest as to be above suspicion, an association which will, at the same time, give protection to the business man in the *making of profits*, which it also may be consistently argued at all times is in the public interest.

It is Mr. Javits' conviction that an association will be completely legal which:

Adopts a uniform cost accounting system;

Binds its members under penalty, to agree not to sell *below cost;*

Agrees to set aside a stated percentage of net profits for employee benefits (to increase wages, shorten hours, or guarantee regularity of employment);

Agrees to donate a fixed proportion of gross sales for research, standardization, simplification of production and marketing, and cost reduction—all of which is for public benefit as well as that of the industry.

Mr. Javits has gone thoroughly into the record of court decisions and government policy as it applies to trade associations, and has no hesitancy in making the assertion that such an association will have the sanction and approval of law and will enable American business to work out of the current morass of depression. Unless industry does so, the author states, it must prepare to abdicate completely its function as the mainstay of our civic and social structure.

Envelope Manufacturers Meet

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 6, 1932—Sixty members of the Envelope Manufacturers' Association of America, were in session recently in the Spink-Wawasee Hotel at Lake Wawasee in Indiana. It was the mid-summer meeting and annual golf tournament of the organization. The convention opened Friday and continued three days.

The business sessions, of short duration were subordinate to the social features of the convention. The association expressed itself as against the three-cent postal rate proposed for first class mail.

Downingtown Mfg. Co. Elects Officers

DOWNINGTOWN, Pa., June 2, 1932—At a directors' meeting held in the office of the Downingtown Manufacturing Company May 25, the following officers were elected: Albert H. Standley, president; Charles L. Ellis, vice president, and manager of sales; Ellis Y. Brown, Jr., vice president and secretary-treasurer; Jacob Edge, vice president and assistant sales manager.

The directors of the company are the above officers, and Thos. W. Downing and I. P. Tutton.

Newfoundland I. P. Reports Earnings

The International Power and Paper Company of Newfoundland, Limited, a division of the International Paper and Power Company, reports that after all charges including taxes, all interest, depreciation and depletion, amortization, etc., net earnings added to surplus for the year 1931 amounted to $634,630 against $764,641 in 1930.

At the end of 1931 inventories of finished paper were written down from $30 a ton to $25 a ton at the mill. As the company normally carries substantial inventories in order to meet customers' requirements during the closed navigation season, this write-down reduced both net earnings and current assets by nearly $500,000. News print paper prices were $5 per ton lower throughout 1931, but production rose to 175,269 tons in 1931 from 168,051 tons in 1930.

During the year indebtedness of the company to International Paper Company was reduced from $7,747,999 to $1,769,115, and a small reduction was also effected in outstanding funded debt. This was partly offset by an increase in current liabilities as the company borrowed $3,800,000 giving the customary Newfoundland Bank Act security on its current assets.

The net result was a reduction of $2,485,657 in total funded and floating debt. This reduction was made out of earnings, out of reserves set aside from earnings and out of reductions in inventories. Expenditures for additions to fixed properties were small and no new securities were issued during the year.

Although there was a decline in the price of news print, effective January 1 of this year, which in the more important metropolitan areas in the United States amounted to $4 per ton from the figure prevailing during 1931, the outlook of the company is not unfavorable, as a fair volume of business is available and definite plans have been made for offsetting the anticipated reductions in gross revenues as far as possible through increased efficiency in operations at the mill and in the woods.

Comparative statements are as follows:

	Year 1931	Year 1930
Gross sales	$9,493,192	$8,822,995
Net revenue, inc. other income	2,923,253	3,073,596
Less:		
Int. on first mort. bonds	243,300	243,300
Int. on debentures, other int., and amort. of bond discount	1,418,981	1,328,101
Depreciation and depletion	626,342	737,554
Balance added to surplus	634,630	764,641
Surplus beginning	2,517,786	1,753,145
Surplus end	3,152,416	2,517,786

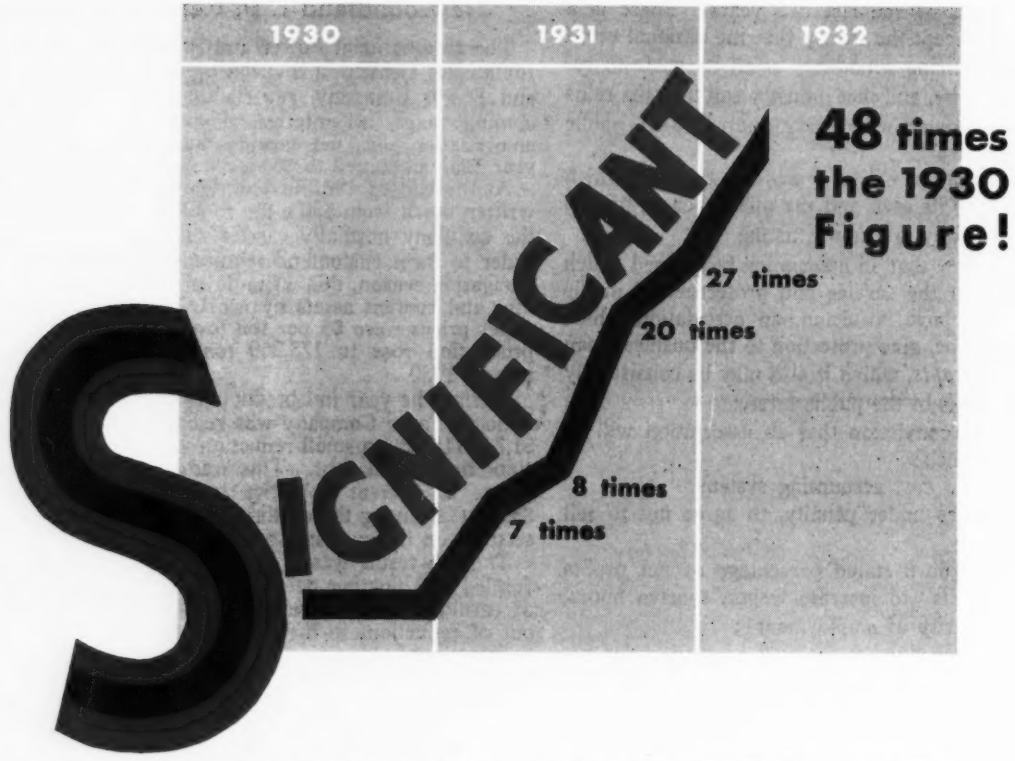
To Stock Miller Papers Exclusively

To meet the growing demand for quicker service and to concentrate the efforts and sales of all divisions on the same few standard lines, the Central Ohio Paper Company has elected to withdraw from its agencies on Warren Book Papers in its Toledo and Columbus Divisions.

For over sixty years the Central Ohio Paper has been successful in developing and marketing Miller quality lines of printing papers, and it now proposes to stock these papers exclusively in its seven warehouses, which are strategically located within the Central States as follows: Columbus, Cleveland, Toledo, Dayton, Detroit, Pittsburgh and Indianapolis.

The Miller quality group of printing papers is made up of the following well known grades: Coated—Finefold, Lilly White, Arctic Folding, Sunlight Folder, Brighton Folding, Washington Dull Superfine.

Uncoated:—Old Gold Superfine, Franklin Offset, Mayflower Text, Copco English Finish, Andover Plate, Belmont English Finish.



KALBFLEISCH DRY ROSIN SIZE SALES INCREASE 48 FOLD

There is a definite story of successful usage, in a sales curve that soars as rapidly—and steadily—as this one for Kalbfleisch Dry Rosin Size. Since its introduction in the last quarter of 1930, sales of this excellent product have increased in volume *forty-eight times.* Kalbfleisch Dry Rosin Size has proven itself; paper mill people are learning, in increasing numbers every day, that it is a dependable, quality product.

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JOLIET, ILL.

Section of the
Technical Association of the Pulp and Paper Industry.
Edited by Ronald G. Macdonald, Secretary

Temperature and Pressure Control in Pulping Wood*

By C. D. DeMers[1]

The primary object of every plant executive in the pulp and paper industry or in any industry is to produce a high quality product at the lowest possible cost; consistent with safe and practical plant operation, and all of his efforts are necessarily devoted to devising ways and means by which this end may be attained.

The equipment manufacturers part in the industrial picture is to work with the various industries in the development of practical and efficient equipment, which properly applied and intelligently cared for will furnish the executive with better, more reliable and more accurate tools with which to control the many unit operations in his plant and produce a finished product in quantities and of a quality that will assure a fair margin of profit on the plant investment.

In the pulp and paper industry the major primary variable is the wood supply. Efforts are made to control this variable by storing different aged and species of wood in separate piles, and drawing from them the wood used for the pulp to be used in the manufacture of paper for any definite purpose. Different methods of control are used, dependent on the location of the plant, and the source of wood supply, and it is safe to assume that this variable is controlled to the closest degree possible with the means available.

There are many points along the stock flow line in a pulp and paper mill at which close control of the process is absolutely essential if a high quality product at an economical cost is to be produced, but obviously this control should start at the very beginning of the process; at the very first production unit where the wood is first converted from block form to unwashed and unscreened pulp, and it is the object of this paper to call to your attention the great economic possibilities offered by a close control of the stock in the first processing unit, of both mechanical and chemical pulp mills, the wood pulp grinder and digester with specific reference to the sulphite process.

Mechanical pulp or the ground wood process was developed approximately 90 years ago. Authorities differ as to who really was the first to produce pulp by this method, but the fact remains that the basic principle of the process has not changed in any way whatever since the first commercial unit was developed. The productive capacity of the grinders, the design as to pockets, number of them, angle of pressure elements, quality of stone, automatic speed and pressure regulators and other mechanical details have all been greatly improved upon, but up until recently, no progress whatever has been made in the methods of controlling one of the most important variables in the grinding process, one that affects either directly or indirectly every important element in both the productive capacity of the unit and the quality of the stock produced. I refer to temperature.

Variations in the temperature of the grinding process has long been considered of major importance, as it is generally agreed that cold or low temperature grinding produces coarse or bundled fibers, cuts down the felting characteristic of the stock, affects the cutting action of the stone, and requires excessive power per ton of product. High temperature grinding produces a shorter, slower stock with less power but cuts down the capacity of the grinder, and also the operating period between the reburring process. Excessive high temperature produces a burned, dark colored lifeless fiber and very often serious and permanent damage to the stone and the grinding unit.

Grinding Temperature

Control of the grinding temperature enables the operator to grind the wood at a temperature better suited to the character of the wood being ground and the quality of the pulp desired. It enables him to produce stock uniform in color, freeness, and with the maximum fiber strength and felting characteristic, and to grind the maximum tonnage of pulp with the minimum power requirements. Temperature control eliminates the abnormal damage to the stone caused by rapid expansion and contraction, due to the extreme temperature variations so common when the cooling water supply is controlled by hand.

Many attempts have been made during the past few years to develop a practical and reliable control system for this application and it was only after extensive research and development work that Tycos engineers were able to develop the highly efficient automatic control system now offered to the trade. The first installation made several years ago has been in successful and continuous operation.

The instruments and application methods developed by the Taylor Instrument Companies for controlling wood pulp grinding temperature, embody an instrument of great sensitivity and a regulator bulb location that hampers in no way the usual operating activities of the worker. The nature of the control is constant and within the limits of ± 1 deg. F. variation of any predetermined temperature. The control point can be changed at will by the operator and in starting up after a shut down, the temperature can be brought up gradually to the operating point. The entire system is simple, practical and reliable and is of too great importance to escape the attention of any plant operator who realizes the value of temperature control in this most important process.

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents' Association, Buffalo, N. Y., June 2-4, 1932.

[1] Taylor Instrument Companies, Rochester, N. Y.

Sulphite Process

Over sixty years have passed since Tilghmann took out his first patent covering the process of "treating vegetable substances which contain fibers, with solution of sulphurous acid in water, either with or without sulphites, etc." Other chemists and engineers including Elkman, Ritter Mitscherlich, have since made valuable contributions to the theory and practice of the process, until now the sulphite process is the most important method of pulp production used in this country.

During the past 25 to 30 years much progress has been made along the lines of accurate and scientific knowledge of the process and in applying this knowledge in the design and operation of the plants and production units. The wood is prepared more carefully, the chips are cut more evenly as to length, refined and screened more carefully. The acid plant under the control of a chemical laboratory produces acid much more uniform in total sulphur dioxide. Indicating and recording gauges are used for checking the pressure and temperature of the stock at definite points in the digester and definite period of the cooking cycle, all as an aid to the operators in their endeavors to follow a predetermined schedule and all tending to standardize the cooking operation so that stock of uniform character can be produced under approximately the same operating conditions.

But notwithstanding these improvements in technique, organization and equipment the fact remains that the sulphite process as a whole is a most complex one, and, still the subject of many diversified opinions, and the stock produced is still inferior to cotton and linen cellulose in strength and permanence.

The present method of temperature and pressure control by which a predetermined schedule of both of these important variables can be maintained within fairly close limits, is dependent entirely upon the human element, and while experience has and does develop great efficiency in the men responsible for the cooking process, the fact remains that the most important process in the entire operation of a chemical pulp mill is subject to the personal judgment of three or more men each twenty-four hours; and regardless of the degree of skill attained; of their training; of the supervision, under which they operate, or of the efficiency and condition of the mechanical equipment used, it is rather too much to expect that three or more operators can so co-ordinate their efforts during each cooking cycle, so that each process will be exactly alike and the same quality and character of pulp will be produced.

It is, of course, understood that the same operations should not be followed out during each cooking cycle, that for some reason perhaps a slight difference in the cooking liquor, perhaps wood varying in moisture content, or for some other reason a different manipulation of the control valves would be necessary in order to produce the desired results. How often is this the case? Is it not a fact that the wood supply in most mills coming from storage piles of considerable cordage varies very little in moisture content and that the variation in acid strength is as a rule more seasonal than daily, and that the great majority of cooking operations are carried out with the idea of controlling the process to a schedule that is based on a fair average of both wood and acid conditions?

After several years of studying sulphite cooking operations, not along the lines of determining what temperature and pressure should be maintained to produce sulphite stock of a desired character, not along the lines of theory of technical control, but along the lines of physical and mechanical control of actual forces, to a predetermined Thermo-Pressure time schedule, the Taylor Instrument Companies have developed an automatic control system which actually controls within very close limits both temperature and pressure to any predetermined cooking schedule.

This control system entirely automatic, for over 9 per cent of the cooking cycle, brings the pressure up to the maximum point in just the predetermined period of time. It maintains the pressure at this point for the actual time desired. It reduces it to a lower point for blowing. It maintains the low temperature so essential during the penetration period, eliminating any possibility of burned or blackened chips caused by high temperature before the chips are thoroughly saturated with liquor. It increases the temperature at the desired rate for any character of stock desired and maintains it at the maximum temperature during the remainder of the cook.

In other words the Tycos system of control especially designed for sulphite digester application, simple, practical and reliable in design, eliminates entirely the human element during two of the most critical periods in the cooking cycle; the penetration period, and the temperature rise and hold period. Close control of these two variables eliminates to a great extent the usual trouble with relief strainers plugging and with digesters not blowing clean.

The original installation made in a plant producing a high grade of bleached sulphite stock has given complete and continuous satisfaction. The general superintendent at the plant writes as follows: "We have had no trouble whatever with strainers plugging or with digesters not blowing clean. It is my opinion that the Tycos control system practically eliminates the human element and gives much more uniform results than any control system of which I know."

He states further, "The men in the digester room cooperate with this system because it lessens their work and takes much of the responsibility from their shoulders."

These expressions from a superintendent who has operated the Tycos control system would indicate that the system not only controls the two most important variables in the cooking process, but has also eliminated to a great extent two of the most common sources of trouble encountered in sulphite digester operation.

Of Wide Scope and Great Importance

The operation of sulphite pulp production is of too great importance and much too wide in scope to be covered by a short paper, and it is not the intention of the writer to attempt even in a small way any description of the process, or of the great possibilities that can be derived through some universal method of standardizing the cooking operation. This paper is meant to bring out the fact that a most complex system predicated on an intricate chemical reaction now under control of the human element has been and can be automatically controlled in a satisfactory manner and while this automatic control system will not adjust itself to every small variation in the cooking liquor or in the chips, it will however do the same thing in the same way every time, a performance which is absolutely impossible when a process is dependent entirely upon the human element.

We have described in this paper automatic control of two great fundamental processes, the most important ones in the pulp industry and have expressed the opinion that control without doubt, affects not only the quality but the conversion cost of every ton of pulp produced in this country. Stock in order to be well processed in the beaters and jordans and in order that a good sheet of product can be formed and dried on the machine, must first of all be a good grade of stock when it leaves the pulp mill whether ground wood or sulphite.

Every pulp producer in the country; every superintendent in this room is interested in a greater production of number one stock; in the question of maximum production at minimum cost; in a stock uniform in color freeness and strength; a stock that will felt well; form well, dry well!

Tycos control will help you produce these results and the economic possibilities offered by the Tycos control systems described in this paper warrants the fullest consideration of every plant executive in the industry.

Sulphur Dioxide Gas Producing Equipment*

By S. F. Spangler[1]

In appearing before a gathering of pulp and paper mill superintendents to describe the developments in sulphur dioxide gas producing equipment made by the organization with which I am connected, a few words of explanation as to our activities appear to be in order. While the "Chemico" organization has been in business since 1914, admittedly we have had too little contact with the pulp and paper industry. Our company was originally formed to build acid-proof masonry towers for chamber sulphuric acid plants for the fertilizer industry; in fact we claim the credit for introducing such construction in this country. As our business expanded, we commenced the building of complete sulphuric and nitric acid plants, fertilizer plants, acid concentrators and the like. For our sulphuric acid plants we naturally sought improved types of sulphur dioxide producing apparatus and this resulted in the development of the equipment which I am about to describe to you.

While our early sulphuric acid plants employed pyrites burners, the general adoption of the use of brimstone during the War directed our attention more to the use of that material. The sulphuric acid plants we constructed in the period from 1920 to 1925 employed, with one exception, the lead chamber process and for those we found the Glen Falls rotary kiln burner very satisfactory. That one exception, however, used the contact or catalytic process and in the operation of that plant we soon realized the advantages that would be gained if we could use predried air for the combustion of the sulphur instead of being compelled to dry the sulphur dioxide gases themselves. Obviously the use of predried air required a gas tight furnace and the work of our engineering department along this line resulted in the modern "Chemico" spray sulphur burner and furnace.

Our first installation, largely experimental in nature, was made at Philadelphia in 1926. This was followed by the installation of improved equipment at our first vanadium catalyst type of contact acid plant in Baltimore in 1927. This Baltimore installation, after some slight modifications, was entirely successful and is still in regular use, burning approximately 17 tons of sulphur per day. Since then we have installed nearly two dozen of these furnaces, with a combined capacity of approximately 500 tons of sulphur per day, in connection with our contact acid plants.

Our furnace proper consists of a horizontal cylindrical steel shell, lined with insulating brick and fire brick. The burner, which delivers a spray of molten sulphur, is inserted through a suitable opening in one of the circular ends. Air for the combustion enters this same end through an annular opening surrounding the burner. Provision may also be made for the admission of secondary or diluting air through openings in the same end, adjacent to the side wall and arranged to deliver the air in a manner not affecting the shape or formation of the flame. The air enters under forced draft from a blower and, for use in connection with contact acid plants, may be predried by passage through strong sulphuric acid. The sulphur dioxide combustion gases leave through a flue at the opposite end from the burner. Fire brick baffle walls inside the furnace insure complete combustion and mixing of the gases.

Spray Burner

The spray burner is essentially a steam jacketed pipe conveying the molten sulphur with a small orifice at the end projecting into the furnace and an elbow connection on the other end. Inside the pipe, at the orifice end, is a movable spiral fastened to a rod which extends back through the pipe and projects out through a stuffing box in the elbow. This permits adjusting the position of the tip of the spiral with relation to the orifice without removing the burner from the furnace or ceasing operations. It also permits using the spiral tip to clear the orifice of any particles of foreign matter in the sulphur that might become lodged in it, though ordinarily all such particles are removed before the sulphur reaches the burner.

The sulphur is melted in a pit by means of steam coils. This pit may be located to one side of the furnace or the furnace may be elevated on a structural steel frame above the pit. Where several furnaces are installed, a central melting pit may be used and the molten sulphur piped in steam jacketed pipe lines to the various burners. A pump is immersed in the molten sulphur and connected by steam jacketed piping to the burner. The pump intake is screened and is about midway down in the pit. Any sand or heavy dirt present in the sulphur settles in the bottom of the pit, from where it is periodically removed by long-handled small scoop shovels, while any light dirt floats on the surface of the molten sulphur and is periodically skimmed off, so that only clean molten sulphur enters the pump for delivery to the burner. By automatic regulation of the steam supplied to the melting coils, the temperature of the molten sulphur is held around 250 deg. F., which is below the temperature at which molten sulphur thickens and becomes difficult to pump. Difficulties encountered with the valve system of reciprocating pumps in our initial experimental installation caused us to develop a small submerged centrifugal pump of our own design, which we now use exclusively in our installations. This pump is preferably steam turbine driven to permit easy variation in speed.

The amount of sulphur handled by a burner may be varied by changing the speed of the centrifugal sulphur pump or by changing the size of the orifice in the burner tip. Large furnaces are also usually supplied with two or more burners, thus permitting the changing of the sulphur consumption within wide limits, without the necessity of changing the orifices, by merely starting or stopping one or more burners. As valves in steam jacketed sulphur lines have numerous disadvantages, each sulphur burner is usually connected to an individual pump.

The furnace is supplied with an oil burner, which is inserted alongside of the sulphur burner,—or in place of the sulphur burner in small furnaces,—for heating up the furnace brickwork when starting operations. Heating the brickwork in advance permits attaining full sulphur capacity quickly. The combustion gases from the oil burner may be carried away through a damper and starting-up stack connected to the sulphur dioxide flue, if it is undesirable that they enter the rest of the equipment designed to receive the sulphur dioxide gases.

Except in very small installations where the cost of the equipment would be out of proportion to the saving in steam costs, a waste heat boiler is installed through which the combustion gases pass after leaving the furnace. The steam generated in such a boiler is more than is required for melting the sulphur and operating the small turbine driven sulphur pumps and the excess is ordinarily sufficient to operate the air blower so that no external power is required for operating our equipment.

It will be noted that the "Chemico" spray sulphur burner is essentially a mechanical burner and resembles the common mechanical type of oil burner as distinguished from oil burners employing compressed air or steam to atomize the oil. We experimented with various methods of atomizing the sulphur in our initial installation and are convinced that mechanical atomi-

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[1] Chemical Construction Co.

zation is the best, if only for the reason that it does not introduce the complication of requiring another kind of power as when compressed air is used.

Advantages of Burner

This burner and furnace has an unique advantage over all previous types in that the supply of sulphur dioxide gas may be stopped almost instantaneously by stopping the sulphur pump, since there is no pool of unconsumed molten sulphur in the furnace which must be burned out before the gas flow stops. This is of great importance in the event of trouble in the sulphur dioxide using equipment necessitating a sudden cessation of the gas supply.

A further advantage is that the blower handles only air instead of corrosive SO_2 gas and may therefore be of ordinary steel construction. The strength of the SO_2 gas may be held automatically at any desired concentration within a range of plus or minus one-tenth of one per cent by controlling the speed of the sulphur pumps in proportion to the temperature of the exit gases. It is possible to produce a gas of strength up to 18 per cent SO_2 without sublimation of sulphur. No dilution of the gases is possible as the entire system is encased in steel and the full concentration of sulphur dioxide is delivered to the absorption tower. The complete installation requires very little space compared with other types of furnaces. The only labor required is that necessary for delivering sulphur to the melting pit and occasionally inspecting the instruments and meters. As very large installations would ordinarily provide mechanical means for delivering the sulphur, the part time of one operator per shift should be adequate in all cases. These furnaces can be economically constructed in sizes ranging from 5 to 50 tons per day of sulphur burning capacity.

When using this apparatus with undried air, as would be the ordinary practice in the production of sulphite liquor, it is obviously impossible to cool the gases in the waste heat boiler below the temperature where acid would condense and attack the boiler metal. This practically requires that the gases leave the waste heat boiler at a temperature not under 600 deg. F. Since this is too high a temperature for admission of the gases into the absorber, additional cooling equipment must be provided. This may be of various types according to the requirements of local conditions. We have recently developed a new type of horizontal gas scrubber which may also be used efficiently as a cooler and offers advantages in cheapness and compactness.

During the last year, we have had occasion to develop a new type of rotary ore furnace in connection with one of our sulphuric acid processes. Actual experimental work in a pilot plant installation at our Charlotte testing station has recently proved that this furnace can satisfactorily be used for roasting many grades of sulphur-bearing ores formerly considered unsuitable for SO_2 production. By means of a partial recirculation of the SO_2 gas, we have found it possible to hold the temperature below that where sulphur trioxide tends to form from the catalytic action of the iron oxide residue. Furthermore, we find that very little dust is carried over from our new furnace, so that passage of the gas through a small cyclone followed by washing in our new horizontal scrubbers gives us a satisfactory clean gas without the use of large and expensive dust chambers or electrical precipitators. These same scrubbers also serve to cool the gas prior to its entering the absorbers. As it is not desirable to carry too high a gas pressure on a rotary kiln, we have found it preferable to locate the blower between the scrubbers and the absorbers in this system, thus operating the kiln under a slight suction.

Initial Cost

The initial cost of the ore burning system is somewhat higher than that of our sulphur burning system of equal SO_2 capacity, and, in addition, the operating costs are higher due to the power requirements. However, as the cost of sulphur as pyrites is ordinarily less than half the cost of sulphur as brimstone, the actual unit cost of the SO_2 produced is decidedly less with the ore burning system, even after allowing for the higher fixed charges on the larger initial cost. While exact figures cannot be given without knowledge of local conditions, our estimates indicate that SO_2 costs, using ore, will rarely exceed two-thirds of those using brimstone.

As the business life of the "Chemico" organization is dependent on the construction of chemical plants, we have secured as complete patent protection on our processes and apparatus, as possible. The fundamental features of our sulphur burning system are covered in a patent issued in 1923, while another patent was issued only this year on the mechanical features of our spray burner. In addition, a large number of applications are under prosecution in the Patent Office covering the features of our newer processes and equipment, are referred to in this paper.

Sheet Formation Control*

By L. M. Booth[1]

In periods of curtailed activities and diminished budgets the executive must make a painstaking analysis of his affairs with a view to disclosing that element which is most timely for his consideration. Presumably he will look for an item which can adequately be cared for at a trifling cash expenditure but which will yield a handsome profit. It is there and he can find it. In the light of earlier training, there may be some reluctance in making an approach toward the solution of the problem in hand from an unfamiliar angle. Nevertheless, when the critical time arrives the problem must be solved or failure admitted. It is futile to cling to the same methods which at one time appeared to be entirely adequate.

Getting down to one of the problems of paper making, namely sheet formation, we find that there are two essential materials concerned, namely, the stock and the water which is used to form the stock into a sheet. In the light of our present knowledge each is indispensable, hence it is useless to conjecture which is the more important. The two requisite elements are equally as necessary as are man and woman for the propagation of the human race.

For various reasons the paper maker has deemed the stock to be of such overshadowing importance that he has relegated consideration of the water to the background. How does he justify the assumption that the water is such a minor matter? Perhaps, to a certain extent, he shares the viewpoint of the casual observer, who considers water as water and lets it go at that. Water as we know it in industry is never pure. It is never free from dissolved solids and gases. These substances exert influences which are not generally understood or appreciated. It is these dilute solutions with which we have to deal in the paper mill, and refer to as water.

Of the factors which our directors of industry must consider, the employees are the most important. For those who predominate numerically, the greater portion of supervision is required. Suppose a paper mill superintendent heads a force of two hundred employees, is he apt to devote the major portion of his attention to one employee?

Now let us consider a paper machine handling stock of ½ per cent consistency. This corresponds to 1 part of stock and 199 parts

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[1] Member TAPPI, president, Booth Chemical Co., Elizabeth, N. J.

of water. How many superintendents devote as much as 10 per cent of their attention to the continuously flowing stream of water which serves as a vehicle for the stock as they devote to the stock itself? In paper making by far the greater emphasis has been placed on the preparation of the 1 ton, so that the 199 tons have received but scant consideration.

To those who have studied the individual characteristics, waters are known to differ widely. Many of the materials of the furnish are soluble in water. For this reason the quality of the water, corresponding to 99½ per cent of the material handled, which is recirculated on the machine, changes from hour to hour. Extensive studies have shown that the quality of the recirculated dilution water has an important influence on the quality of sheet formation. This research work has disclosed the reasons why under some conditions sheet formation is favored and why under different water conditions difficulty arises, notwithstanding the fact that the stock may have been properly prepared in each instance.

Let us make an inventory and appraisal of the duties of the key men in a paper mill. If, for the moment, we assume that we are interested only in paper making and buy our water, power, and steam, the number of key men required up to the time when the sheet leaves the driers is just two, the beater man and the machine tender. They are always on the job. They are the key men who carry on.

Next let us analyze the respective duties of these essential men. The beater man, guided by the furnish specifications, prepares the stock by providing the necessary mechanical and chemical treatment. In the latter we include the application of size, alum, color, etc. The quality of the pulp which he furnishes may vary; possibly it may not have been washed so well as that used yesterday or last week. If the furnish includes old papers the chemical quality is continually changing. Besides, our typical beater man is not infallible. As a result of some inadvertent or unexpected circumstances, the machine tender will have difficulty in handling the stock.

In this connection it is well to remember that such of the chemicals which the beater man furnishes as do not mutually react or combine with the stock, are carried along in the water and eventually present themselves in the water which is used on the machine.

Now consider the machine tender who is battling to form a sheet such as will pass muster. The jordan is reset and appropriate mechanical adjustments are made, such as his skill indicates to be desirable. Still the paper is not up to standard. The pail of alum which he next throws into the chest may be unnecessary or even detrimental. Since every cloud has a silver lining, later in the run conditions change, and the sheet comes up to standard. Insofar as sheet formation is concerned the machine tender gets into trouble and then he gets out of trouble but he was not absolutely sure he knew the reasons why. This circumstance is no fault of the machine tender but arises because of divided responsibilities, and also owing to his inability to determine the relative importance of the governing factors.

In this matter of divided responsibility, with respect to chemical characteristics, the division has been made by the management in such manner that the machine tender has practically no share in it, yet he is held responsible for sheet formation. The beater man applies the chemicals and if upon inspection the paper is found to be unsatisfactory, the machine tender is blamed. He may pass the buck to the beater man, in accordance with customary machine tender procedure. However, if he knew more about the importance of the controlling factor, the 199 tons, corresponding to 47,738 gallons of water, which he uses every time he makes a ton of paper, he would very properly place the responsibility on the management because of failure to provide him with facilities to check the quality of the water with which he forms the sheet.

Paper makers are well aware that water conditions exert an influence on sheet formation. Usually the emphasis is placed on the mill water supply, especially if it is not well adapted for paper making. Actually the quality of the fresh water has but relatively little influence on sheet formation. Verification of this statement is immediately revealed when it is remembered that the volume of recirculated dilution water vastly exceeds that of the fresh water which is used near the point of sheet formation. Even though no water but fresh water may be used in the beater room it has practically none of the characteristics of fresh water by the time it arrives at the wire. Besides, from the standpoint of volume, the beater water is only a minor percentage of the total amount used for sheet formation.

The primary object of presenting these views is to arouse paper makers to their responsibilities concerning the chemical conditions prevailing in the water carrying the stock to the wire. Surely more time may well be devoted to the consideration of the quality of that material which vastly exceeds in quantity all other things used around the mill.

Fortunately, thanks to simple test methods which have been developed in the water works field, the paper maker does not have to invent new tools or to develop untried means for discovering why, under some conditions the sheet forms well, and why it forms poorly under other conditions.

Mill Control

During our era of specialization most matters labeled "chemical" have been relegated to the laboratory. The business of checking the quality of the water which runs around on the paper machine, and of making the necessary compensating adjustments is not a laboratory job. It is primarily the concern of the superintendent's man, the machine tender. Sometimes we hear that "Our machine tenders are too busy," or "They could not make the tests." If they are too busy it is because they spend too much time making ineffectual adjustments or because they are bucking up against long odds. It is futile to endeavor by making only mechanical adjustments to compensate for troubles which cannot be corrected by mechanical means. Any man who is sufficiently competent to be offered a machine tender's job can quickly be taught to make the necessary simple tests, to interpret his findings, and to apply the remedy. Within a surprisingly short time increased production of better paper will result. With his new tools, the machine tender is no longer at the mercy of the beater man but can quickly make the indicated changes to compensate for the chemical inequalities. The beneficial influence of the chemically adjusted water carrying the stock to the wire is instantly felt. It is entirely logical for the machine tender to make chemical adjustments of the water because it is he who is directly responsible for sheet formation. This plan tends to inculcate self reliance in the man who is actually making the paper. Remote control and divided responsibility are thus eliminated.

This preliminary discussion has been presented in the hope that the superintendent will resume some of the technical responsibilities for the operations with which he is directly concerned. In the final analysis it is the superintendent to whom the management looks for results.

Already a vast amount of convincing data have been assembled which conclusively indicate the advantage of being able to form a sheet under definitely known water conditions which may be expressed in specific numerical terms. No special technical skill is involved in the recommended control procedure. Your own laboratory already has the necessary test equipment or you can purchase it from any laboratory supply concern for a few dollars. Your technical director will be glad to cooperate with you in this undertaking since, by this reallocation of duties, his department will have more opportunity to devote to development work.

In conclusion it is our contention that the quality of the water with which you form the sheet is of major importance and should merit the full measure of your attention which it deserves. If the speaker can be of any assistance in outlining the simple test methods involved or interpreting your data he will be glad to do so at your request.

TAPPI Section, Page 296

The New Miami Uni-Flo Vat*

By J. A. Hamm[1]

The development of a paper and paper making is synonymous with and paralleling the development of civilization of our human races. Observation shows us that where paper is used, the race or people using most paper enjoy higher civilization and the opposite is just as true.

Man is always trying to perpetuate knowledge and training and paper is the easiest and best material for this purpose. This history of paper making and materials and methods used is quite common knowledge and familiar to you all.

From the hand-made paper stage one of the earliest machines used was the vat. We have no accurate information as to the exact shape of vat used. It is natural to assume that from the flat screen hand mold, the next step would be to turn to some continuous method and the cylindrical mold would answer the problem.

In place of pouring stock into a stationary hand mold, pour it on a revolving cylindrical mold.

This short history of the vat is necessary to introduce our subject as it is quite a long way from the early box or vat with cylinder mold to the development of the type of vat under discussion.

The Fourdrinier type machine came into use mainly to accomplish what was thought impossible to accomplish in a cylinder type of machine, the crossing of fiber or gross grain formation.

The two diagrams will serve to illustrate the difference between vats now commonly used and the Miami Uni-flo.

Let us examine briefly what takes place. In the old type the stock enters at say point "A." The flowage is baffled for mixing and flows over partition or weir to mold. A large amount of the stock must flow down around the circle and in the opposite direction that the cylinder is travelling. The mold is trying to stem this flowage and turn it back to the same direction that the mold is travelling. A certain portion of the stock succeeds in reaching the upper part of the circle and here becomes somewhat dead, waiting to be picked up on the mold.

The difference in hydraulic head is the cause of formation of sheet. If there were no difference between level of stock outside the cylinder and level of stock or water inside the cylinder, then we would have no formation taking place.

In the old vat we present a continuous clean surface plunged into a more or less stagnant pool of stock and expect to get good results. Granted that it is possible to form a good sheet at this point, it does not follow that you will have a well formed even sheet as the mold emerges from the stock, due to the effect of the mold plowing through at opposite direction to the flowage and what takes place on this journey is problematical and your guess is as good as mine. We believe that some of the good result is maintained due to the hydraulic pressure tending to keep the formation on the mold.

In the early days when the vat ran slow, the natural laws of drainage had a better chance of performing as the currents were slow and the agitation if any was gentle, the centrifugal face of the mold was negligible. As the machine was speeded up the troubles began to appear, the conditions were greatly exaggerated. Irregular, lumpy formation was the result, and has been getting no better fast. Fiddles, hogs, agitators and what not have been installed and taken out. The step from single cylinder machine to multiple cylinder type only exaggerated the conditions by the number of cylinders added.

Analogous to Fourdrinier Machine

Examine the flowage of the new type vat in the light Fourdrinier machine terms and experience, because the new vat is analogous to the Fourdrinier machine.

The stock enters compartment to correspond to head box and flows over baffles for keeping the stock mixed, and flows to the cylinder in the same direction the mold is travelling. Part of the stock flows over the discharge gate and is re-circulated. The entrance of stock to mold is controlled by two adjustable members. The sluice is adjustable to or from the mold and apron-board is adjustable up and down from the mold.

Say we are running 300 feet, the adjustable sluice is set to create a head or pond, similiar to the Fourdrinier to force the stock to travel the same speed as the cylinder. The stock is prevented from touching the cylinder by means of the apron-board until after it has passed the sluice. This apron-board literally kicks the stock away from the mold back under the ledge formed by the sluice, causing a swirl or mixing and crossing of fiber to give a cross grained Fourdrinier like formation. Then the fomation takes place very quickly on the mold under the pressure head of the pond. The stock is travelling the same speed as the cylinder so the formation is not disturbed. We believe that most all the formation takes place in a comparatively short space with some slight addition being made during the balance of the travel.

Like a lot of other good things now in use in paper mills, this vat was conceived, built and operated by a paper maker in a mill. Of course the first vat he built was crude and simple, but it got results and basically the vat we are building is the same only properly designed and mechanically perfected. There are two common means of forming used; namely, pressure and vacuum or lack of pressure. In our new vat we employ both. As in the old type the difference of hydraulic levels outside and inside the cylinder creates formation. The pond or head gives us controlled pressure and by sealing the ends of the molds so that you cannot see into the inside of the mold allows us to hook on a vacuum pump creating some vacuum on the inside of the mold. This amount of vacuum is beneficial to forming and in adherence of sheet to mold after it leaves the stock level in vat, and materially aids the coucher in water removal.

I have mentioned the two adjustable members on approach side of the mold. The overflow circle and gate are also adjustable and have a direct bearing on the formation and action of the vat. The circle of the vat seems to have always been a debatable subject. Paper makers have many arguments for and against the circle being in certain shapes and distances from the mold. To find out exact data, the last job we built we made the circle adjustable, adjustments being made with mold running. We will have data available shortly on the effects of changing circle.

Float Control

The vat is built with float control automatically controlling the level of stock in the pond as well as the level of water inside the mold. The float outlet valve is of the balanced type makes the effect of float more sensitive as well as positive. We found the float very essential as changes in stocks, slowness or freeness are compensated for automatically and very quickly. If the stock gets slow the level of water inside the mold would tend to go down, the amount of stock overflowing the gate would increase. A change in stock to greater freeness the action is reversed. The float controls all these features.

We have used a single pump for handling both white water and stock overflow and have also used pumps on stock overflow separate from the white water pumps. Both hookups have given good results.

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[1] Engineer, Shartle Bros. Machine Co., Middletown, Ohio.

We found early in the development work that with this type of vat you could run extremely thin stock and handle the effluent water quite easily. Being able to run thinner stock is in itself conducive to good formation.

In the old type vat to get any speed it was necessary to run thick stock to pick up the caliper desired. This thicker stock aggravated the lumpy formation.

In order to measure the velocity of flowage of stock in the circle we have installed several openings in front vat side to permit slipping in a pitot tube. The velocity flowage will be registered on the outside of vat on the pitot tube scale. We believe that once the pitot reading is known, and head measured that we can log the vat in such a way the velocity can be set with adjustable members set at known distances.

We have been working with the vat about three years and our experience has been quite gratifying. Our first installation was on tissue in New York state. We have attained speeds nearly 500 feet with a 30-inch mold. In the early layouts we considered using 24-inch diameter mold. Our theory was to form quickly and get away—the smaller mold looked like it would do it. We soon found out that the difficulty was in the removal of the water from the inside of the mold. We are now convinced that 48 inches diameter of mold on tissue and higher speeds on board machines up to 450 feet per minute, makes a better installation securing best results. We followed up in the tissue field with three more installations all giving very good results.

We then entered the nine point corrugated field. Our first installation was in Ohio, the next two went into Indiana. They have run faster speeds with better formation, more uniform quality than they had previously been able to attain. These three installations are on straw paper. We then placed one of the vats into operation on saw mill waste, going into a nine point corrugated sheet in Louisiana. This was a change over job from the old or conventional type vat, which failed on this sheet.

Our progress has been slow, but sure. We have been successful in each field of paper making that we have entered.

We have a couple of three cylinder jobs about ready to start and believe that they are going to be successful.

For fear of misunderstanding, you can run either a Fourdrinier like formation or a straight cylinder formation in the same vat, by adjusting the sluice, apron and overflows.

On a multiple cylinder machine it is possible to laminate the sheet in alternate cylinder and Fourdrinier formations.

The shrinkage in drying has not been detrimental to plys. In one instance we know of laminating a cylinder formed sheet of ground wood to a Fourdrinier sheet of sulphite and it was excellent paper. The bond was good and held firmly. It may even be possible to run kraft bag and wrapping the same speed as the Fourdrinier with the proper diameter mold correct design of this vat.

In the board industry paper makers and builders have long felt that the common type of vat could stand much improvement. Very few paper makers have been satisfied with the formation obtained with vats now in use. When we investigated the patented vat described in this paper, we believed that it showed great possibilities. We contracted for the patent and started to work on it. Our progress, though slow, has justified our first judgment. We are offering the paper maker a vat that is a decided step in advance of anything he has used to date. We know that with the new Uni-flo vat that you can improve formation and quality, two of the constant problems and sources of trouble to the paper maker.

Micarta in the Paper Industry*

By Samuel A. Staege[1]

In paper mill applications the question of quality and characteristics of materials is an important factor and should often be the determining consideration in the selection of many of the things which are used. In the design of a machine or part of a machine the suitability of the material entering into it may determine the success or failure of the device and it is sometimes exceedingly difficult to find materials having characteristics which will satisfactorily meet the various demands made upon it. Paper mill practice over a long period of years has brought out many new uses for old materials and has stimulated the development of new materials intended to provide the several characteristics required which are sometimes apparently quite divergent and one would sometimes think contradictory.

Micarta is one of the relatively new materials coming into extensive use in paper mill applications and it has been found that it has characteristics making it rather phenomenally versatile. It has high strength yet is not hard like steel. It has great resistance to wear and yet can be molded and machined so that it can be produced in almost any desired form. It is light, weighing only about one-half as much as aluminum and has a very low adhesion or affinity for paper and pulp fibers.

Micarta is made in the form of tubes, plates, angles, rods, solid blocks, etc., and can be fabricated by cementing together. Micarta plates can be cemented together by means of lap joints or by butt joint construction with a joint strip on one side, and angles or other forms can be cemented to plates so that structures of almost any shape can be built up forming tanks or tank linings, conduits for the flow of stock, save-all pans, etc., of almost any conceivable shape desired and if necessary such structures can be reinforced for additional stiffness by cementing stiffening members on the back side as would be done in structural steel design except that no riveting is required and the cementing can be done so that no strength will be lost.

In cementing members together procedure should be followed similar to the methods used in glueing wood parts together. The surfaces must be true and clean, with the gloss and varnish removed. Pressure should be applied after the cementing is done so that the surfaces will be tightly pressed together, at every point, with sufficient pressure to squeeze out any excess cement. These precautions are essential if a strong and watertight joint is to be made.

Doctor Blades

One of the applications where Micarta has been extensively used in paper mills is for doctor blades. Micarta doctor blades have been used for press rolls, drier rolls and calender rolls. For press rolls Micarta produces less wear on the roll and does not wear rapidly itself. For drier rolls there is no tendency to cut and a very light film is deposited on the drier roll which seems to prevent it from rusting. For calender rolls the Micarta doctor blade has also given excellent service.

Something new in bearings has been developed within the past few years in which a Micarta lining is provided. The fabric of the Micarta instead of being applied flatwise is wound edgewise and molded so that the grain is radial. This type of bearing lining has been used extensively for steel mill roll neck bearings where an increase in bearing life of several hundred per cent

TAPPI Section, Page 298

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usually results. This type of bearing is good for pressures up to 2000 pounds per square inch and either oil or water lubrication can be used. The fact that water lubrication is entirely satisfactory for Micarta bearings makes it especially suitable for bearings in stock chests, vats, pumps and other places where it is difficult to maintain oil lubrication, and where it has been found necessary heretofore to use lignum-vitae bearings. Micarta shows a life under such conditions several times greater than is usually obtained with lignum-vitae bearings or any other materials heretofore used.

Bearings

The graphitized Micarta bearing is another variety of this product which has marked advantages over graphitized bronze or babbitted bearings because the Micarta does not seize or grip the journal or shaft when the graphite no longer furnishes a complete support to the load, or under failure of lubrication. Graphitized Micarta bearings are used in out-of-the-way places and where lubrication is difficult or liable to be forgotten or overlooked and usually where pressures are not as high as in the case of the oil or water lubricated bearings. For relatively light work. Micarta tubes of suitable material and where properly lubricated may be used as bearings.

There are many grades and types of Micarta specially designed for different kinds of service and it is essential that the right grade of Micarta be used for the various purposes and many of these applications have required a great deal of development work to produce a Micarta exactly suited to the requirements.

Micarta roll covers are one of the most promising of the relatively new applications in the paper mill, Micarta covered tube rolls have now been in continuous operation for more than a year. Numerous installations of Micarta table roll covers have been made on machines of various sizes and speeds and there is every indication that the Micarta roll cover will be the solution to many of the perplexing problems in the past. A Micarta covered aluminum tube roll makes a very light roll, retains a perfect balance, resists corrosion and the attacks of weak acid and alkalis found in the pulp solution and retains a smooth homogeneous surface with a very low coefficient of friction so that the wear on the wire is reduced to a minimum and because of the very low affinity of Micarta for the stock fibers material does not adhere to the roll. Micarta is substantially water-proof, absorbing only a minute trace of moisture and can, therefore, be used in wet places and for such purposes as roll covers without loosening or giving trouble.

Micarta has been used for vibrating screen toe blocks with great success because of its wearing qualities and resistance to shock.

Pipes and Suction Box Covers

Piping for handling weak acid and chemicals has been made from Micarta and can be threaded similar to metal parts. Micarta pipes, troughs, save-all pans, etc., have an advantage in that the stock does not seem to cling to the surface, thereby avoiding lumps.

Flat box covers are coming into favor for wire and felt suction boxes. The rate of wear is much less than for wood, and as the coefficient of friction is less the wear on the wire is also less. A built-up suction box cover, with the laminations and fibers at right angles to the travel of the wire is preferred. This is the arrangement used in our heavy duty Micarta bearings which have shown much longer life than other types of construction.

Micarta wainscoting for office buildings and similar applications is one of the new uses for Micarta coming into extensive use. Desk tops are also made from Micarta and it is an excellent material for table tops in sorting rooms and for numerous applications where a smooth uniform surface is required.

Hundreds of tons of paper are used in the manufacture of Micarta which should make it an item of special interest to the paper industry. Cotton fabric is also used in certain types of Micarta where characteristics are required which cannot be obtained with the paper base.

Fourdrinier shake springs of a special Micarta structure have marked advantages over other materials. Attention must be given, of course, to correct thickness and dimensions as well as to the proper type of Micarta.

Because of its great strength and wearing qualities Micarta has for years been extensively used for gears and pinions. An excellent combination is to run a Micarta pinion with a cast iron or steel gear, which makes the operation extremely quiet. Hundreds of thousands of Micarta timing gears are made from Micarta.

Micarta has been used very successfully for chip hammer bearings in hammer mills. Lubrication of the usual kind is of course difficult or impossible but the Micarta stands up very well in this severe service. Micarta has such unusual characteristics and properties that it could well be considered for most any special and exacting application.

Properties of Micarta

Micarta is a strong dense material made by hot pressing sheets of fabric material which previously have been impregnated with an organic binder. All grades of Micarta possess good insulating properties. The grades which are recommended particularly for insulating uses combine high dielectric resistance and mechanical strength with high insulating resistance, low power factor and low moisture and oil absorption. Those grades which are particularly suitable for mechanical application are exceedingly strong and tough. Micarta is easily machined, takes a high polish and holds its original shape under extreme service conditions and exposure to greatly different atmospheric conditions. Some grades are infusible and unaffected by heat until the temperature is high enough to carbonize the material. Other grades are designed to soften very slightly at high temperatures to facilitate the punching of different shapes. Micarta is insoluble in all known solvents. Dilute non-oxidizing acids have little effect upon it.

Present Uses of Micarta

Micarta is now being used for airplane fire walls, cabin linings, wing covering, pulleys, etc. It is used for angles and structural shapes of various kinds. Bushings, brush holders, bus bar support insulators, bases, book covers, brackets, etc., are built of Micarta. Cord terminals, conduits, cleats, couplings, cable joints, channels, cores and counter tops are constructed of Micarta. Micarta has become a common material for the construction of fan blades and is used for friction discs and gears and is being used successfully on such small machines as speedometers, oscillographs, coffee grinders and meat choppers and with equal success on such heavy duty work as milling machines, high pressure pumps and reversing planers. Everywhere in fact where durable resilient and quiet running gears can be used. An almost inexhaustible list of devices and parts are now being made from Micarta, including gaskets, handles, ignition coil boxes, impellers, knobs, mandrels, miners' hats, name and number plates, ornamental display panels, pistons, pump washers, rayon spinning buckets and reels. Micarta serving trays have become very popular and it has found its way into switch bases, strain insulators, shims, spacers, spools and sash. All of these and many others, in addition to the applications which I have previously mentioned applying particularly to the paper mill industry, are typical of the uses to which Micarta can be put.

Prospective Use in the Paper Industry

The possible uses of Micarta in the paper industry have hardly been touched, and it is expected that as a greater familiarity with this material and its many advantageous characteristics is obtained many new uses will be discovered for it.

The Permanence of Paper*

By B. L. Wehmhoff[1]

The question of what constitutes a permanent paper, and its corollary, what constitutes the most suitable storage conditions for paper have been the subject of discussion and research for many years. There is no doubt that more people are interested in paper permanence and that more research is being conducted on this subject than ever before.

Prior to 1860 the only paper making materials of importance were the celluloses obtained from cotton, flax, and hemp. Esparto, which is now widely used in Europe, was first used in paper making about 1860. It was followed by mechanical wood pulp in 1870 and by chemical wood pulp about 1880. In recent years purified wood fibers have been introduced into paper making.

Early Research

Comments on the lack of permanence of papers used in important documents and books began to appear with more and more frequency during the last years of the 20th century. It is often assumed that all papers made prior to the introduction of such materials as esparto and wood pulp were of a permanent character, since they were made of cotton hemp or linen fibers. That such is not the case is shown by an article in the Gentleman's Magazine, London, in 1823, by Mr. John Murray, and by a later article by the same writer entitled "Practical Remarks on Modern Paper" in which he discussed the deterioration of paper made prior to that time. He cited the following as being among the chief causes of decay.

Chief Causes of Decay

1. Damage to the fiber on the machine (a new invention at that time).
2. Mineral loading, especially gypsum.
3. Excessive bleaching.
4. Alum in the size.

The most important document in English on this subject is the report of the committee on "The Deterioration of Paper" appointed by the Royal Society of Arts in 1898. This report, only some 3,000 words in length, contains definite findings, the majority of which apply fully as well today as when they were written over thirty years ago. The specific findings of this report are as follows:

Paper Making Fibers. In order of permanence (under normal treatment—):

A. Cotton, flax and hemp.

B. Wood cellulose (a) sulphite process, and (b) soda and sulphate processes.

C. Esparto and straw celluloses.

D. Mechanical wood pulp.

Normal Standard For Permanent Book Papers. Specification:

Fibers.—Not less than 70 per cent Class A.

Sizing.—Not more than 2 per cent rosin, and finished with normal acidity of pure alum.

Loading.—Not more than 10 per cent total mineral matter (ash).

For written documents, a pure class A paper, sized with gelatin, not rosin.

The first research on the causes of deterioration in paper was conducted for the German Government at Charlottenburg between 1885 and 1896. As a result of this work an elaborate classification of paper was drawn up, which corresponds in its important points to the Englished classifications issued in 1898.

In 1908 Dr. Herzberg of the German Materialprüfungsamt examined 435 samples submitted by the University of Berlin Library from works intended for permanent record. A small percentage of these were printed on all rag paper, the remainder being on paper of varying wood composition. Only 1.6 per cent of the total number complied with the strength requirements. Since some of the rag papers showed poor tests he concluded that fiber composition alone is not a sufficient specification, and that the quality of the raw material and their treatment in the process of manufacture are important and can only be insured by strength specifications. He recommended that paper of definite strength requirements, made from pure rag fiber, be used for valuable books and treatises and paper of the same strength class made from any non-lignified fiber be used in periodicals.

U. S. Specifications

No official action was taken in the U. S. until 1904 when Secretary Wilson of the Department of Agriculture authorized the Bureau of Chemistry to investigate the subject of suitable papers for Government purposes. This investigation covered about 5,000 samples of paper and was reported in two circulars by the Bureau of Chemistry. Subsequently, a commission was appointed by the Joint Committee on Printing of Congress to pass upon the matter. The report of the commission was adopted in December, 1911. Included in the report was a specification for a printing paper that would "endure indefinitely." This specification, the first issued in this country, for a permanent paper, was as follows:

Weight: 25 x 40, 500 sheets, 50 pounds.

Thickness: Shall not exceed .0035 inch.

Strength: Shall not be less than 18 points.

Stock: Shall not be less than 75 per cent rag; the remainder may be bleached chemical wood, free from unbleached or ground wood pulp.

Ash: Shall not exceed 5 per cent.

Size: The total rosin shall not exceed 2 per cent.

All paper purchased by the Government since that date has been purchased under technical specifications covering both physical and chemical characteristics of each kind of paper. These specifications are revised annually by a committee whose recommendations are passed on by the Joint Committee on Printing of Congress.

The fact that the quality of paper alone is not the sole factor in determining its permanence was early recognized by some investigators. A bulletin No. 2795 of the American Newspaper Publishers' Association states: "An examination of the places of storage in libraries and of the conditions of storage convinces me that while the ordinary news print paper may not be in any respect suitable for purposes of preservation, the methods of handling these papers when bound are conducive to deterioration. This criticism applies not only to libraries but to newspaper offices and substantially to all places where newspaper files are stored. In many of the libraries the files are subjected to treatment which deprives the paper of its required moisture. The artificial heat renders the paper extremely brittle and makes it crumble like isinglass when handled. Excessive dampness is also disadvantageous."

This is followed by recommendations on the proper conditions for the storage of printed matter. In support of this contention may be cited one book printed about 100 years ago on mechanical wood pulp, which is today in almost as good condition as when first printed. It is true that the paper was made by hand and probably with great care, but the important facts are that it is mechanical wood pulp paper, which has been stored under favorable conditions and is still in good condition.

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Reference Library Books

In an article published in 1924, (3) H. M. Lydenberg, Assistant Librarian of the New York Public Library, severely criticized the publishers of such standard works as the Encyclopedia Britannica and the Oxford English Dictionary for using paper of questionable permanence and quality. The U. S. Government also came in for criticism on the quality of paper used for printing the bound volumes of the Congressional Record.

The question of paper permanence has come to be of such international importance that the League of Nations appointed a committee of experts to consider the subject. The first meeting of the committee was held in Paris in January, 1928, at which a number of recommendations were made on the composition of papers intended for permanent records, as well as on conditions under which such records should be stored. The following recommendations on the composition of permanent papers is of particular interest to paper manufacturers.

"A preference at the present state of the manufacturing process to be given to unbleached rag paper; it being understood that new processes of treating cellulose may in the future provide paper of lasting quality."

The effect of storage conditions is being given its share of attention in the study of preservation of records. This phase of work is being studied at the Bureau of Standards under a grant from the Carnegie Foundation, which is being administered by the National Research Council. The results of the work so far accomplished were recently published by the Bureau of Standards (4) and includes definite recommendations on library storage conditions.

The U. S. Bureau of Standards is studying the permanence of record papers, particular attention being paid at the present time to book papers. A recent publication (5) gives the results of a study of 46 samples of various qualities of commercial book papers.

The specifications recommended in this publication for permanent papers differ widely from those made by previous investigators. The paper is not required to be made from any particular fiber, the use of unbleached and ground wood fibers only being prohibited. The permanence of the paper is determined by a comparison of the physical and chemical characteristics of the sample before and after an accelerated aging test, (6) which consists of heating samples of the paper for 72 hours at 100 deg. C. in an electric oven. It is assumed that the deterioration so caused is equivalent to that which would occur in the same paper over a storage period of several years under normal conditions.

These specifications have elicited considerable comment, some favorable and some unfavorable. Professor Robert C. Binkley of Western Reserve University in his recent publication, (7) calls them revolutionary in character. Jessie E. Minor (8) emphasizes the fallacy of any attempt to set up specifications for artificial aging which apply alike to papers of widely varying characteristics.

Actual and Artificial Aging

The most generally accepted opinion is that there may be some value in such specifications, but that there is now no conclusive proof, and that there can be none until the papers made according to these specifications have been given actual as well as accelerated aging tests.

At present the only papers which have stood the test of time are those which were carefully made from cotton, flax or hemp fibers and have been stored under at least average conditions. This is due, of course, to the rather recent introduction of chemical wood pulp and also to the fact that the earlier chemical wood pulp papers were as a rule of an inferior character. It is safe to assume that a well made chemical wood paper will have a longer life than similar paper made 40 years ago, but there certainly is no assurance that such a paper will have as long a life as an equally well made rag paper.

The results obtained on the same sample by different accelerated aging tests, of which, by the way, there are several in addition to the one used at the Bureau of Standards, often fail to correspond, which tends to cast doubt on the value of any of them until verified by actual aging tests.

In Sweden Gosta Hall in his study on permanence of paper (9) performed accelerated aging tests by exposure to direct sunlight and heating to 100 deg. C.

In Germany we find accelerated aging tests being made at 40 deg. C. (10) instead of 100 deg. C. Ultra-violet light tests are recommended by other investigators. (11)

The firm of Canson & Montgolfier in France also evaluates paper by means of ultra-violet light accelerated aging tests (12). A recent communication from them contained much interesting information on tests of wood papers made from mechanical wood, bleached and unbleached chemical wood pulp, purified wood fibers and rags. The purified wood fibers used in their experiments was made in the United States. The outstanding feature of their report is the close correlation between their test results and those so far obtained by actual aging tests. They rate paper making fibers in the following order, the last being the most permanent. Sulphite pulp, soda pulp, cotton and flax. Purified wood fibers were classified with the other chemical wood pulps. A study was also made of the effect of various paper making practices such as sizing, bleaching and fillers. The specifications which they follow in making permanent record papers for the French Government are as follows:

Weight and Finish: As ordered.
Stock: 100 per cent pure unbleached rag.
Sizing: Rosin: none.
Glue: required.

No bleaching is permitted in any of their permanent papers. They do, however, permit up to 1 per cent rosin in some papers, which corresponds to the procedure in this country.

It may be of interest to you to hear the opinion of paper experts of other countries as well as those of this country about evaluating the permanence of paper on the basis of accelerated aging tests.

Opinions of Investigators

Dr. W. Herzberg, Chairman of the German Materialkrufungsamt, which corresponds to the Bureau of Standards in this country, states: (13) "I am still skeptical on aging experiments at such a high temperature (100 deg. C.) We have not gone farther, here, than 40 deg. C. There will be a wide field for experimentation on this subject. Based on the chemical purity of cell fibers alone, I would not admit them as a substitute for rag fibers; only of the latter are we positive that papers made of it can last for centuries; and that refers to a material that was by no means chemically pure."

Mr. L. DeWeerde, chief chemist for Joh. Enschede en Zonen, the largest printing plant in Holland, writes (14): "I cannot accept the heating in air at 100 deg. C. as an influence which is comparable with a prolonged contact with air at room temperature. I do not know a reliable aging test or set of aging tests. According to my opinion we know much too little about a sheet of paper to be able to predict for centuries on the basis of an accelerated test. The great importance of the matter compels us (1) to use new rags which have been carefully treated before spinning and weaving when valuable documents are to be made, and (2) to build up more complete knowledge of the physical and chemical properties not only of cellulose, but especially of the complete sheet of paper itself."

Gosta Hall (15) in discussing accelerated aging tests in his study on Permanence of Paper at the Swedish Government Testing Institute states: "It can reasonably be questioned whether heat and sunlight cause the same kind of deterioration that takes place when the papers are kept. Judging from our experience in Sweden I dare say that this is in all probability the case."

Dr. Jessie E. Minor (16) states: "The first difficulty is that we can not find an accelerated aging method which maintains the normal relationship between its factors. Every one of the methods

suggested so far, probably accelerates certain reactions of natural aging, but it fails to accelerate some others and it introduces new ones which might never occur under normal conditions." And again ([17]) "* * * it is not immaterial as to what temperature is chosen for oven aging, and the temperature should be chosen with a view of grading the various types of these papers in the same general ratio as is found for the slower normal aging process."

R. C. Griffin, Director of Tests for Arthur D. Little, Inc. says ([18]): "I feel that 100 deg. C. is a pretty high temperature for an accelerated test on cellulose."

Chemical Tests

Among the chemical tests used in evaluating the permanence of paper are per cent alpha cellulose, copper number, acidity and per cent rosin. Investigators do not all agree on the value of determining the per cent of alpha cellulose. Some believe it to be of more value to find out what injurious impurities are present; still others state that in some cases considerable fiber deterioration can occur before there is an appreciable drop in the alpha cellulose content.

There is more agreement in the case of copper number and acidity. Practically everyone agrees that both should be kept as low as possible. The main disagreement seems to be just how low each can be kept.

Other chemical requirements are gradually being developed for permanent papers as research shows the effect of small amounts of impurities. It has been proved that rosin has an adverse effect on the life of paper when present in excess of approximately one per cent. It seems logical to believe that lesser quantities would also have the same tendency, but that the effect would not be as noticeable. All permanent paper specifications now state the maximum amount of rosin which will be permitted. Recent research indicates that ferrous iron accelerates the deteriorating action of rosin, but insufficient data is available to warrant this point being covered by specifications at present.

The length of time any paper can be expected to last depends primarily on two things, the quality of the paper itself, and the conditions under which it is stored. There is a general agreement on the latter, but on the former there is a definite disagreement as to just what constitutes a permanent paper. On the one hand there are those who believe that the source of the papermaking fibers has no effect on the permanence of the paper and that the permanence can be predicted by a series of physical and chemical tests in conjunction with an accelerated aging test at 100 deg. C. or possibly by means of one or more other accelerated aging tests.

On the other hand there are those who believe that accelerated aging tests must await the test of time to prove their relative worth, and that until such time arrives the only way to insure paper permanence is to make the paper from all new white or unbleached rags, with the additional safeguard of physical and chemical requirements to insure the necessary strength and freedom from injurious materials.

The following comparative specificationss show the effect of the different schools of thought when applied to specifications for the same grade of paper. One is the specification recommended for the Bureau of Standards Research Paper No. 349 and the other is the specification adopted by the Joint Committee on Printing. Both specifications are for permanent book papers.

BUREAU OF STANDARDS RESEARCH PAPER No. 349

Stock: Free from unbleached or ground wood fibers. Alpha cellulose content not less than 90 per cent. Copper number not more than 1.0.

Acidity: pH value not less than 4.5 and acid number less than 25.

Rosin: Not more than 1.0 per cent.

Stability: When heated for 72 hours at 100 deg. C. the alpha cellulose content shall decrease not more than 1.5 per cent, the folding endurance shall decrease not more than 25 per cent, and the copper number shall increase not more than 0.5.

Weight: The strength and opacity vary according to the weight and correspond very well in the two specifications.

Opacity: Not specified.

JOINT COMMITTEE ON PRINTING SPECIFICATIONS

100 per cent new rags, white, cream or unbleached.

pH value not less than 5.0 nor more than 7.0.

Rosin not to exceed 1.2 per cent.

This paper must be made with every precaution to insure the maximum serviceability and permanency. Care must be taken to use the minimum quantities of bleach, rosin size, and alum. The finished paper must not show the presence of any injurious residual chemicals which will interfere in any way with the permanency of color or the serviceability and durability of the paper.

Storage and Durability

The following quotation from the report of a committee of experts to H. M. Stationery Office expresses the English viewpoint.

"The committee wish to place on record * * * that the question of storage is of primary importance.

"The committee wishes to place on record * * * that the question of the durability of papers containing esparto fibers or chemical wood but they have had no evidence that either esparto or chemical wood paper has deteriorated under good storage conditions. Books printed 40 to 50 years ago on paper containing these fibers in an excellent state of preservation have been inspected while on the other hand samples of paper made from rags, probably of inferior quality and of careless manufacture and kept in an impure atmosphere, have shown very marked deterioration. Esparto fiber is however suspected by many authorities and in the circumstances it is advisable to exclude it from a paper known to be required for permanent records.

"After careful examination of the specifications in the Stationery Office Paper Schedule, it is recommended that for Class I papers there should be a stipulation that only new rags, white, cream or unbleached should be used."

Views Generally Coincide

The English views coincide generally with those of other Government agencies, both in this country and in Europe who are responsible for the permanency of the paper purchased under their supervision.

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Finnish Paper Market

[FROM OUR REGULAR CORRESPONDENT]

Washington, D. C., June 8, 1932—Reports to the Department of Commerce indicate that the Finnish paper and pulp markets are showing no improvement. After a short period of activity the thin crinting market is again quiet, while there has been no change in demand or prices in the news print market. Shipments of chemical pulp during April were somewhat better, ascribable perhaps to the cessation of shipments from Sweden, but prices, if anything, are weaker.

Accident Prevention*

By John Lundrigan[1]

The best way we know of to have our say on accident prevention in industry is to describe our safety organization and how it works out in every day practice. To get the right prospectus it is necessary to keep in mind this organization takes in 25 separate plants spread over two thousand miles of territory. Each plant has its own local management, the whole directed by one general management. This compels uniformity of rules, records, reports and statistical history, in brief, all operations and practices dealing with accident prevention.

We have gradually built up regulations, standards, special types of service, sources of information, education, training, etc. through the medium of general instructions in printed form, having the force and authority of executive orders of the company. Space does not permit their reproduction here, for which reason we are leaving with you a copy of an address or statement made by myself before the National Safety Congress in 1928 and reproduced in our company magazine. We, of course, believe these regulations are worthy of publication. Your association must use their own judgment as to that.

General supervision is directed by our industrial bureau at the general office where all available information on accident prevention and records of such accidents as do occur are assembled and distributed to the separate plants. This includes up to date Federal and State laws and codes, reports of accidents with causes and remedies, safety literature, illustrated posters, special reports and recommendations from various sources and most important of all, detail records showing actual experience of each plant and all plants on every item of accident. Experience, including occupation of injured, cause and nature of injury, time lost and money cost, so arranged as to provide full comparison of each item with corresponding periods of previous years and of each plant with the other.

The principal value of this information consists in giving each plant the benefit of the experience of all others in the study and correction of accident hazards instead of possibly locating each bad condition as a result of an injury to an employee.

Another feature directed by the general management is the first aid and nursing service. This organization consists of a supervising nurse at the general office with one or more plant nurses, at each paper mill location. All such mills are equipped with a high class first aid room the use of which, including services of nurses, are extended to all cases of illness or injury of employees and their families in addition to treatment of industrial accidents.

Safety and Sanitation Superintendent

Each plant operating organization is provided with a supervisor of safety and sanitation devoting all of his time to the study of accident hazards, making recommendations for accident prevention, improvement of sanitary conditions and keeping complete records of all accidents that have occurred, including medical care and recovery of injured employees. He is the plant clearing house for information and instruction on all safety matters. His duties compel cooperation with both the supervising management and employees, with particular reference to advice and instruction to new employees.

The local safety committee at each plant consists of the plant manager as permanent chairman, the safety supervisor as secretary, the foreman of all departments, one or more selected workmen from each department, the resident engineer and the plant nurse. This committee studies the accident experience of all our plants and makes recommendations concerning all known hazards, including bad practices, poor housekeeping, etc.

All recommendations and reports pass through the hands of the plant manager and are sent to the general office. Practically all recommendations made are approved which automatically transforms each of them into an order to be complied with.

Approved orders are recorded and checked up at both the local plant and general office until compliance is had. Whenever there is good reason for non-approval of any safety recommendation, definite explanation or reason for it is furnished to the local plant safety organization and becomes a matter of record. Do not get the impression all ordinary cases of removing accident hazards require the approval of the general office. Such approval is only required where structural or other positive changes in plant or equipment may be necessary. The safety supervisor makes weekly reports of all existing hazards which includes such conditions previously reported that have been corrected. Our system of reports covers every known hazard and provides for recommending a remedy.

Whenever an accident does occur, record is made of every possible stage, including cause and nature of injury, treatment, recovery, lost time and costs subdivided. This involves the use of various report forms, description of which would take up considerable space, which we prefer to devote to stating a few of the more important problems, methods and opinions our experience warrants.

Reduced Costs by Accident Prevention

We are convinced employers must deal with accident prevention more from the standpoint of avoiding and reducing costs than making it a question of sentiment. This can only be done by instilling into the minds of operating managements, accident costs, which, in addition to money paid out, include bad reputation of the plant or industry, interruption of production where accidents occur, labor turnover, education of new employees, and, when it involves a series of promotions, requires the breaking in of several employees in changed duties, as well as new men hired at the bottom. Each has some effect in slowing up and creating defective production. All of them are actual costs, as well as medical and compensation costs, although more difficult to trace or locate.

The big and permanent item of increase in cost is the demand for and enactment of additional stringent and costly laws regulating safe conditions as applied to structures, machinery, equipment and compensation. Once enacted these costs become permanent and must all come out of the product.

So far as legislation, laws and codes are concerned, they are being ground out wholesale, probably with good intent, but often in the absence of reasonably complete experience or information either as to the condition to be corrected or the value of the remedy. In many states existing laws are added, changed and amended in such volume there is little real knowledge on the part of anyone what the law actually is. Very often opportunity has not been given for a fair trial of an existing statute before changes are made.

A great majority of accidents in modern factories are the result of someone violating an existing statute of the state or a safety rule of the employer. It seems to us the sensible proceeding to correct this condition is to comply with the law and the rule, instead of adding a lot of more or less involved legislation. Many times the employers or his representative is at fault through failure to maintain safe conditions. This is likewise true of workmen who either suffer injury or cause it to others.

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* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents' Association, Buffalo, N. Y., June 2-4, 1932.

[1] Industrial superintendent, International Paper Co., New York, N. Y.

We believe it would help materially if the workmen were to be included in legal penalties when he is at fault.

Available data on industrial accidents including our own experience proves that approximately 75 per cent of the total are caused by wrong practices and what might be termed poor plant housekeeping, entirely separated from the operation of machinery and power transmission, making it reasonable to assume proper training, education and maintaining of safe practices on the part of individual employees would prevent the greater part of such accidents.

We would suggest the state or government should have a positive duty in assisting to correct this condition. In pointing out what that duty should consist of, we want to be positively understood as not criticizing our treatment by the several state and provincial governments with which we come in contact in the enforcement of factory laws, which has been satisfactory so far as personal and official cooperation and fair dealing on the part of government representatives are concerned. Therefore, our criticism, if such it may be termed, is directed at the common understanding of the laws and the duty of individuals applying and enforcing same.

The general practice consists of a routine and sometimes hurried inspection of structural and mechanical conditions at the plant; the inspector is usually accompanied by a plant representative. The result where conditions do not conform to the letter of the law is a terse positive order usually issued through the executive of the state department, to correct, remedy or change some structural or mechanical condition. Probably some explanation as to how this can be done is made to the representative of the plant who happens to accompany the inspector. This, however, is not required by law and is a mere courtesy on the part of the government.

So far as dangerous practices on the part of employees are concerned, any competent inspector making a study of average factory conditions cannot fail to observe their existence. At the same time, beyond prohibiting smoking, etc., orders directed against practices or actions of employees are scarcely ever issued. This is not the fault of the inspector as the law is likewise silent on such subject. When the inspection is completed the employer is left with a group of arbitrary orders to change structural or mechanical conditions with which the few individuals who had personal knowledge of why they were issued may be familiar. So far as bad practices on the part of employees are concerned, the employer still has the age old remedy of personal discipline of employees without any backing or reinforcement by the state.

New System of Control Recommended

The writer is of the opinion this whole system and practice should be radically changed so that the state's duty would be to substitute for the work now performed by factory inspection forces, a combination of inspection, education and correction of wrong conditions, the factory inspector to have authority and be qualified to not only discover the existence and remedy for wrong structural and mechanical conditions but for wrong human conditions as well, and instead of the routine inspection, in which he is probably checked up as to the amount of territory covered, the inspector's work should be measured by results obtained in determining all wrong conditions that exist in plants inspected by him and what has been accomplished in the way of providing information and instruction as to how they should be done away with. As the result of such activities on his part state labor department recommendations and orders should include bad conduct and unsafe or dangerous practices on the part of the workmen, as well as wrong structural and mechanical conditions so that the employer would at least have the moral support of the State Inspector's recommendations in safety education and if need be discipline of employees. I do not mean by this to add another force of supervisors and inspectors; what is intended is the present method be changed and so far as the present force is competent, its duties and responsibilities changed to conform.

In order to make definite progress in improving industrial conditions from the standpoint of accident prevention, the usual practice of doing things must be reversed; in other words, it must be developed from the top down and applied at the closest point of contact between employer and employee, which means in practice the chief owners and executives must have the will to insist on it as an important item of the employer's policy.

Plant managers must make it a fundamental part of their operating creed. Then the men at the real point of contact, the department foremen or gang boss, will translate it into action and practice in his constant contact with individual employees. He is the "top sergeant of industry" and the leader of his crew. The individual workman may be more or less informed as to what the general management desires. He comes close to knowing what his personal "boss" won't stand for.

So that, when we have ownership and management insisting on the prevention of accidents, which means proper care of such injuries as do occur, as a definite part of the operating policy of industry under their charge, we know the man in direct charge of operation will do his part, that means you, the superintendent and foreman, not only from the standpoint of human failing and interest, but with the knowledge it costs the same kind of money to spoil human beings as to damage structures, machines or their product and is therefore a direct cost charge on the operation.

After all, the sum total or fundamentals of accident prevention in industry are few and easily understood, they consist of safe structures, equipment and machines plus good housekeeping, then, most important of all, seeing to it each individual knows or is taught how to do the job he is assigned to in the way you want it done. Every employer wants the job done efficiently which is only another name for safety. All of which is fine if we do not call it complete at this point, which is where it really begins so far as you men are concerned, because the whole structure tumbles if supervision fails in seeing to it that all of these fundamentals are not only on hand but constantly functioning, particularly the human item, that is your job.

Remember, good rules are fine things to have around, so provide them, but do not use them as an alibi for your own shortcomings.

The Aloxite Brand Pulpwheel*

By A. L. Ball[1]

Pulp grinding, along with the other operations in paper mill work, has come in for a generous share of attention and the new type of wheel which you gentlemen have been looking over in the lobby is The Carborundum Company's answer to that phase of pulp grinding which concerns the abrasive wheel, this wheel representing the type for non-tapered flanges, while no hub is used for bevelled flanges. Although it is only recently that we have launched definitely into the market with this pulp wheel, nevertheless years of research endeavors and actual tests had to precede the actual entry into the field. We have had wheels in continuous and successful operation for over two years, but despite the success of these wheels we continued our research and field trials at a sacrifice of sales before we made public the story of this improved wheel.

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents' Association, Buffalo, N. Y., June 2-4, 1932.

[1] Member TAPPI, research engineer, The Carborundum Co., Niagara Falls, N. Y.

Many of you are familiar with the early efforts directed towards the manufacture of the artificial or manufactured pulp wheels and I plan to pass over the phase of the question hastily. Such mixtures as Portland Cement or oxychloride cement and sand have been tried out. These cement bodies have been reinforced in all manner of ways. Half sized sandstones have been cemented to form large stones; stones have been broken into sectors then drilled and spliced together to obviate the danger of stones cracking in use by deliberately cracking and subsequently reinforcing them. In the interval from 1912 to 1916 we made small trial wheels of Portland cement with fused alumina as an abrasive. Such a wheel performed fairly creditably until the shallow outer crust formed by the hardening action of carbon dioxide upon the cement had worn away. Even such combinations as vulcanized rubber and artificial abrasive have been tried—in the face of the fact that hard rubber smears when it becomes heated. It must be said in all fairness that most of these tests were made wholeheartedly in the light of the knowledge at the time and carried on with an earnest desire to solve the problem. So far as we are concerned, the problem has engaged our attention for a great many years.

Artificial Stones

When the requirements of the pulp mills called for more production per grinder, then more power, more pressure and more area of stone surface had to be put into use, and it seemed that the demands being made upon a natural stone were becoming excessive, and mill experiences, especially with the large grinders, seemed to bear this out. Abrasive manufacturers have naturally delved into the question of the variable composition and strength of sandstones and have concerned themselves with the problems of uniformity, grit size, theories of grinding, etc. Since even the smallest pulp wheel is entirely too large a mass to vitrify in one piece, attention has been focussed upon various methods for holding segments into place in the form of a wheel. Iron hubs with ribs running crosswise or even around the hub as well as ponderous centers, etc., have been tried out. Broken trial wheels tell the tale of the degree of success attained and the hard lessons learned with regard to the physical strength of materials elasticity, thermal expansion, heat shock on abrasive and heavy load pressures exerted both vertically and horizontally upon the wheel.

The earlier wheels were composed of coarse grit, made to imitate the range of grits found in sandstones and as a result sawdust was produced instead of good pulp—much to everyone's surprise. This called for a series of tests to determine the proper grit size for artificial abrasives and at the same time it was found that in the results obtained from small wheels there is very little indication of what would happen if the same grit structure were tried out in a full sized wheel. The real magnitude of the task of making an artificial pulp stone was eventually impressed upon us and we finally launched into the problem with renewed intensity and directed the most critical attention to factors which had previously been considered too lightly or accepted as satisfactory. After several yeras more effort had been put in from that point, our present wheel has been evolved.

The questions which a modern pulp wheel should answer are directed toward the right quality of fiber and the acceptable production of this fiber with a minimum of waste. The wheel must be safe to operate, perfectly adapted to the work it must perform, require a minimum of attention, serve a long life and show an ultimate stone cost per ton of pulp that is in keeping with modern requirements and mill economics.

We feel that The Carborundum Company's pulp wheel answers these qustions very fully and we would like at this time to touch upon the essential features incorporated into this wheel.

Fused Aluminia

The abrasive is vitrified bonded fused alumina. By vitrified bonded we mean that the material which bonds together the grit particles of fused alumina has been heated at an intense heat and vitrified, thereby surrounding and obtaining a very firm grip upon each abrasive particle. Fused alumina has been selected as the most suitable abrasive because of its hardness, toughness, fracture, crystal shape and apparently inherent ability to rub and not cut the fibers from the log and to produce an excellent quality of pulp. We doubt if we can over-stress the point that pulp grinding is not basically a cutting process. The fibers must be rubbed off rather than cut. This is one of the outstanding differences between wood and metal grinding. I can not call to mind a single instance of metal grinding where the entire process is directed toward controlling the character of the chips produced, such as is precisely the case in wood grinding. Since pulp grinding is conducted as a wet process and at temperatures oftimes as high as 200 deg. F., it is very essential that the bond be perfectly resistant to the action of hot water. The size and shape of the segments used in our wheels have been determined largely by the maximum size which we consider advisable to make with sufficient accuracy and uniformity to answer the purpose.

The problem of joints in a segmental pulp wheel is by no means a small one. High tensile strength is one of the most important characteristics of the joint cement from our standpoint of manufacturing a strong, safe segmental wheel. The material we use will test approximately 1500 to 2000 pounds per square inch tensile strength; this alone provides a wide margin of safety for holding the segments in position during the operation of the wheel. The most important question from the standpoint of the mill operators is whether or not the joints will make excessive waste in the pulp. Joints which undercut and thus leave crevices will surely increase the amount of waste in the pulp and hence create a loss to the paper manufacturer. Our experience has shown that with the joint material used in our pulp wheels there is no tendency toward undercutting. The joints which extend around the wheel approximately in a plane perpendicular to the drive shaft actually would undercut and produce waste if they were in a plane which was truly perpendicular to the shaft. However, this possibility of undercutting has been eliminated by constructing these joints on a bias. Another requirement in joint construction is that the joints be very thin, thereby presenting to the wood a maximum of abrasive surface. We favor joints on the average of 3/32 inch thick or less.

Since there seems to be no definite size of flange to use with a certain size of pulp wheel, we have deemed it wiser to manufacture wheels with an abrasive volume which may be worn down to the diameter of the smallest flanges in use. In this way, we pass on the user all the abrasive volume that it is possible to offer and leave it up to his judgment as to whether or not he wishes to wear the stone down to the flanges.

The safety of our pulp wheel is assured, as you may observe by examination of the blue prints illustrated in the small pamphlet on our product, by the presence of numerous steel reinforcing rings in addition to the strength of the joint cement. These alloy rings are 1 inch x 1½ inch in section and more than amply withstand the greatest stresses which may be placed upon the wheel. By this method of construction each annual ring of the abrasive segments is retained by steel, the interior rows of segments being held by the reinforcing rings and the outer rows at the sides of the wheel are held by the flanges. You are all aware of the fact that right and left hand threaded flanges are used and in consequence the tendency is to tighten continually the flange grip upon the wheel.

Our early efforts have taught us that temperature changes must be adequately cared for in the design itself. To this end we have produced what we term a fully compensated wheel. The thermal properties of the joint cement and the reinforcing rings have been very definitely selected in relation to similar properties of the abrasive. As a result the entire wheel responds as a unit to changes in temperature.

As you gentlemen undoubtedly realize, it would be almost im-

possible for me to submit ideal figures regarding horsepower per ton, pulp quality, etc. Much has been published upon the effect of variations of wood; new wood, old wood, dry wood, river wood, and their effects upon the pulp quality and power consumed. In addition to these, the requirements of any particular mill are controlled by the quality of sheet they wish to produce and the manner in which their paper machines are functioning. Then, too, various mill operators have their own pet theories as to the best methods for obtaining maximum production and uniformity of pulp. The present tendency when compared to practices of several years ago, is toward burring or sharpening pulp wheels somewhat more frequently, but lightly, thereby obtaining a more uniform quality and a somewhat higher production. There are, however, many operators who sharpen less frequently and permit of a trifle wider range in stock freeness and rate of production and are just as satisfied that their methods are entirely adequate. It is therefore somewhat less essential to emphasize length of sharpening interval than it was sometime ago. However, our abrasive has shown excellent performance under long sharpening intervals and we hasten to assure those who prefer not to sharpen daily, that they need have no apprehensions regarding the Aloxite Brand pulp wheel performing properly with less frequent burring. Far be it from us to criticize either method. The most significant observation that we have made in the above connection is that our pulp wheels respond very excellently to whatever system is being used, our object being to supply the grinder with an abrasive wheel that has the proper texture, grit structure, mechanical strength, resistance to hot water, and heavy power input.

I shall be very pleased to answer any questions you may have. I wish to emphasize, however, that it would probably be very easy to trip me up on the delicate technical questions regarding pulp quality, although after having visited pulp mills for several years I have gradually succeeded in learning something of your problems. Since there is so much difference in the pulp required by various mills, we have always placed our wheels in operation with the idea of working cooperatively with the groundwood superintendent to produce that quality of pulp which he knows is best suited to his requirements.

What the future will bring forth in the way of new pulp wheels is rather a matter of conjecture. Right at the present moment the emphasis seems to be placed upon the grinder design rather than upon the wheel design. More and more of the entire wheel circumference is being put into use. Wider pockets are becoming more common and this means, of course, that higher total pressures upon the wheel must follow if the unit pressure of the wood against the abrasive is to be held anywhere near the proper figure. As a result, more horsepower is being used to turn the wheels. A few years ago 1100 or 1200 horsepower was quite common for 54 inch wide stones. In the more recent installations, loads as high as 1600 and 1800 horsepower are being used. It is these heavy loads which are causing the manufactured pulp wheel to become a necessity instead of an experiment. The high inherent resistance of manufactured abrasives to crushing stresses can not be questioned, although we can not help pointing out that it is physically possible to crush this material by applying approximately 15,000 pounds per square inch. Nevertheless, when the demand for greater strength becomes sufficiently insistent, mechanical ways to meet these demands will be found. Even at the present date we are endeavoring to look ahead from five to ten years in order to be prepared for future requirements with a wheel of adequate strength, at the same time having absolute confidence in the ability of our present product to withstand stresses far in excess of those impressed upon it today.

In concluding this paper, I would like to summarize the major points we have covered by saying that this pulp wheel embodies:

First—Abrasive composed of crystals whose shape is perfectly adapted to produce pulp.

Second—Joints which are constructed thin and biased, and hence do not cause waste.

Third—A structure fully reinforced for safety.

Fourth—Complete compensation for temperature changes.

Fifth—Available abrasive extending to the flanges.

Sixth—Long life and low cost per ton of pulp.

During the course of this presentation we have endeavored to avoid any serious amount of sales talk or arguments. Might I suggest that you make it a point to examine one of these wheels which we have on exhibit here in the hotel lobby and at that time we would be glad to go more into detail.

Progress In The Manufacture and Control of Groundwood *

By A. T. Gardner [1]

In the development of the paper industry great strides have been made in the improvement of paper machines, in the advancement of pulping processes, and the screening of stock; but until recent years very little thought has been given to the manufacture of ground wood.

Such factors as type of burring, correct temperature, consistency at grinders, pressure, and the type and speed of stones which enter into the manufacture of ground wood were known facts, but each mill had its own idea as to the way to produce ground wood and very little thought was given to the matter.

In recent years the development of the pressure regulator which regulates the pressure when pockets are being recharged so as to distribute the pressure over the balance of the pockets, the artificial stone which allows for control of the type of stone to be used as the grit and binding of materials can be controlled in its manufacture, and other numerous changes have made ground wood mills conscious of the fact that the ground wood mill is open for improvements and much can be done to produce a more uniform product. When one considers that ground wood comprises as high as 80 per cent of the furnish in some papers, it is hard to understand why the ground wood mill has lagged behind the other departments in regard to development.

Today, however, considerable thought is being given to the operation of the ground wood mill and the technical side is being developed so that ground wood production in the future will not be dependent on the judgment of the operator as is the case in most mills today.

The initial step in this direction was the introduction of the freeness or slowness tester. This instrument has been a help in the production of a pulp uniform in the rate at which water will leave the stock. This test has proven very useful to the operator and is now in use in most mills today.

Freeness Testing

There are several such testers on the market. These various types do not express freeness in the same figures, and for that reason considerable misunderstanding has arisen when speaking of the freeness of pulp. D. S. Davis and L. E. Simerl in their paper "Inter Conversion of Freeness Scales," (PAPER TRADE JOURNAL, Sept. 18, 1930) have developed a method whereby it is

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendent's Association, Buffalo, N. Y., June 2-4, 1932.

[1] Member TAPPI, chief chemist, Combined Locks Paper Co., Combined Locks, Wis.

possible to convert the reading obtained on one tester to what would be obtained on any one of several others. This has simplified the matter somewhat, but it is still necessary to mention the type of tester when speaking of freeness. The freeness tester has done much to control the production of ground wood but as it is a measurement taken on a composite sample which is made up of everything from slivers to flour, it is not necessarily a measurement of the uniformity of the length of fiber. The writer has examined samples on the blue glass of pulp which gave identical freeness figures, and found that the pulps were of different character. In order to secure a more accurate test, several methods have been developed.

One such method is to make up standard slides of various pulps and compare the sample with these slides.

Another method is the measurement of fiber length by means of a fractionating screen. In this method a set of four screens is used, each screen having a different cut plate. The screen is run so that the stock flows from one screen to the other and the flour passes away through the last or fine screen. The stock on each of the four screens is then weighed and the percentage of each fraction computed. This gives a very accurate analysis of the uniformity of the ground wood fiber.

This analysis takes out of the hands of the operator the responsibility of determining the type of product by use of the blue glass. It also provides an accurate means for determining the type of burring best suited for producing the desired pulp or in some cases a more desirable pulp.

Variation in Quality

Ground wood production in most mills is a product of several units. Due to the fact that the products obtained from these units vary from one another through the variation in stones used and other operating peculiarities and to the fact that the stone surface is an ever-changing factor, the testing of ground wood is not as simple as is the case with other pulps. Where several units are operating the variation in the product obtained from each stone does not show up to any great extent when testing the resulting screened product which is a mixture from all units.

Because of the variation or constant changing of the pulp from each unit a quick test is necessary, for if two or three hours are taken for making a test the product may be entirely different by the time the results are obtained.

It is therefore necessary to have control tests which will measure the product in some numerical term and which can be obtained quickly. These tests should be run on each unit so that the operator can decrease the variation between units and obtain a uniform pulp with the least amount of screenings.

Most operators, when correctly informed regarding the meaning of the numerical terms used to designate the pulp desired, are better equipped to do their work and depend upon these tests entirely.

Besides the tests used to obtain a measurement of the product, factors such as temperature, pressure and consistency are important to the operator. In all mills the pressure regulator, pressure gauge or recording pressure instrument, control the factor of pressure used.

Temperature, however, and consistency control is not used in every mill. The recording thermometer has taken care of the temperature factor but in most mills the operator has to guess at the consistency. However, if temperature control is installed the consistency will take care of itself as this will vary on different types of wood and stone faces when a constant temperature is maintained.

In sulphite mills the operators are equipped with recording instruments and testing equipment and it is just as important that the operator of the ground wood mill be similarly equipped so as to obtain the greatest production of a uniform product.

Canadian Technical Section to Meet

Following is the program for the Summer Meeting. Headquarters are Welland House, St. Catherines, Ontario. Delegates arrive at St. Catherines 11 a.m., Wednesday.

JUNE 22

2 P. M. Visits to Alliance Paper Mills, Interlake Tissue Mills Company and Provincial Paper Mills.

7:30 P. M. Paper by W. H. Swanson of the Kimberly-Clark Corporation on "Circulating Systems."

JUNE 23

10 A. M. General Meeting of the Section
Meeting of Committees.
1 P. M. Technical Section Lunch.
Presentation of Weldon Medal
Address: "Color Press Printing on Newsprint," by John Park, production manager, Chicago Tribune.
2:30 P. M. Visits to Canadian Vegetable Parchment Company
Beaver Wood Fibre Company
6:30 P. M. Golf at Look Out Point Country Club
Competition for the McInnis Trophy
Dinner

JUNE 24

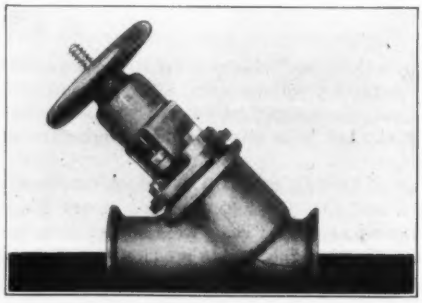
10 A. M. Visit to Welland Ship Canal and Ontario Paper Company
1 P. M. Lunch as guests of Ontario Paper Company
2:15 P. M. Visits to Niagara Wire Works
Queenston Power House
I. P. mill at Niagara Falls, N. Y.
I. P. mill at Tonawanda, N. Y.
Cars will be provided.
Rooms at the Welland House are $2 and $2.50.

Members take care of their own hotel bills. Reservations may be made if desired through Canadian Pulp and Paper Association, 3420 University street, Montreal, P. Q., A. E. Cadman, secretary.

There will be a registration fee of $5 per member to take care of luncheon on the 22nd and dinner on the 23rd and incidentals. Members of TAPPI will be particularly welcome at this meeting.

For Handling Sulphite Liquors

For handling sulphite liquors, phosphoric acid and other corrosives at rapidly changing temperatures, a new line of pumps, valves and fittings in the chrome-nickel alloy steels, Durimet, KA2S, KA2S-Mo and Alcumite (aluminum bronze), is being announced by The Duriron Company, Inc., Dayton, Ohio, in bulletin No. 514, which will be sent upon request. The new standard one-piece body "Y" valve is made in five sizes, from ¾ inches to 3 inches with screwed or split flanged ends. A special feature is the disc which is so attached to the stem that it is free to rotate each time it is used.



A removable seat "Y" valve—Type RS—has a two-piece body and is procurable in six sizes from 1 inch to six inches with flanged ends only. The full floating disc is also a feature of this valve, in addition to the removable and reversible seat.

Special valves in any of the corrosion resisting alloy steels will be made on order.

Downingtown Extractor for Cylinder Machines*

By C. H. R. Johnson[1]

The paper industry today is suffering from over production, due largely to reduced demands, and this condition increases manufacturing costs. Until the demand approaches the normal capacity of the mills, maximum or increased production will not help the situation, and other means must be sought to lower manufacturing costs. The machine builders having realized these conditions, have been studying improvements for the paper machines with this object in mind. It has been found, for instance, that in the board industry there is an opportunity along these lines in the matter of water removal on the cylinder machine.

A Water Removing Device

In making a study of the conventional board machine, it should be considered as a water removal device, water being removed from the sheet during and after its formation. Water is first removed from the sheet by drainage from the cylinder moulds, and a device known as a felt, which is saturated with water, picks it up at the cylinder moulds and then carries it over suction boxes where water is removed mostly from the felt. Then this pick up felt and sheet come in contact with another felt known as a top felt, which is also saturated with water and is used as additional protection for the sheet as it goes through a series of presses. If the sheet is thick, these felts are inadequate for protection, and as it goes through the press nips, it becomes deformed and sometimes crushes. Sometimes because of the character of the stock, the thinner boards will also crush. As the sheet is compressed in the earlier presses, known as wringer rolls and baby presses, white water is forced up into the top felt and carries stock with it. This, in turn, fills up the top felt and causes what is known as picking. A great many machines, during the normal life of the felt, have to slow down on account of this picking, or else stop to wash up so as to maintain their normal rate of speed.

The Matter of Blowing

Another evil that has to be contended with on a cylinder machine, is the matter of blowing. Blowing sometimes takes place between the sheet and the felt and then again sometimes between the piles of the sheet itself as it goes through the earlier stages of pressing. A great many means and devices have been tried to correct these troubles on the cylinder machine, some having been more or less successful.

A great deal of care is spent in forming a good sheet on the cylinder mould, and when the water is being removed from same, the formation is more or less spoiled by the pressing methods now used on the conventional machine of today. The white water should be removed in such a manner that during the pressing process the fibers are held in place just as they come off of the cylinder moulds.

The Downingtown Extractor

A new and novel press has been developed for removing large quantities of water from the sheet after it comes off the last cylinder mould. Removing water at this point is the logical place, because in doing so it prevents a lot of troubles that take place in the ordinary presses, because the sheet enters same in a drier condition. This device is known as The Downingtown Extractor. It consists of a wire faced bottom roll. This roll has a stiff cast iron core on which are mounted heavy cast bronze spiders. These spiders support brass rods on which is wound the copper winding wire on a very close pitch. This roll is mounted in adjustable anti-friction bearings. The top roll is rubber covered on a cast iron core, having steel journals, and is also mounted on anti-friction bearings. The whole unit is designed for compound weighting. It is equipped with a slice, as a very large amount of water comes up through the pick up felt. A shower is placed on the bottom roll to keep it clean.

The single unit installation, which is the more common one, is located between the last vat and the whipper stand for the top felt. This is shown on this diagram of the original installation on machine 6-B of the Consolidated Paper Company, Monroe, Mich.

Incidentally, this was our second installation which was put in in January, 1931, and since then we have built about forty units.

We have installed several units on machines running in the opposite direction of the so-called standard design. This layout shows the extractor between the vats and the primary presses. In all installations the sheet comes in direct contact with the wire surface of the bottom roll. The white water pressed from the sheet goes down through the wire surface and also up through the pick up felt.

The extractor does not require a suction pump and up to the present time no single installation has been driven. The stretch of the felt through this unit has been found to be less than that of most cylinder moulds.

Single Unit Installations

As we have installed quite a number of extractors on cylinder machines throughout the country, we have had an opportunity to gather some interesting information on results that are being obtained. In order to grasp an idea as to the kind of weighting that is carried on these units, below is a table of nip pressures found on cylinder machines:

Position	Nip pressure in pounds per inch face
Cylinder moulds	8 to 15 pounds
Wringer rolls	15 to 30 pounds
Primary presses	30 to 125 pounds
First main presses	75 to 200 pounds
Extractors	50 to 100 pounds

It will be seen from this table that the weighting of an extractor comes within the range of primary presses. To use such comparatively heavy nip pressures on the sheet as it comes off the moulds, makes it possible to send same much drier to the presses. Here is the secret of the elimination of checking on heavier boards in presses when more weighting is used in this part of the machine.

In regard to water removal, tests have been made in various mills where extractors are installed. Troughs have been placed under the entire unit and with the shower shut off, the white water was measured. It has been found to range from two to over three pounds of water per pound of dry finished paper. This is the total amount of water removed from both the felt and the sheet. In contrast to this, tests run on suction drum rolls have been found to remove ½ pound of water per pound of dry finished board, this demonstrating, of course, that in the heavier boards, the sheet has to be pressed to remove an effective amount of water.

Consolidated Paper Co. Tests

The Consolidated Paper Company ran some tests to find out how safely white water is removed from the sheet. The machine was struck out and samples removed at strategic positions. The machine was producing, at the time, 28-point board. The sheets taken off the machine were allowed to dry normally and were then calipered and the amount of shrinkage noted. Below is given results of these tests:

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents' Association, Buffalo, N. Y., June 2-4, 1932.

[1] Downingtown Mfg. Co., Downingtown, Pa.

Position	Per Cent Consistency	Dry Caliper	Per Cent Contraction
After last cylinder	12.9	.0457	...
After extractor	15.5	.0429	6.1
Before wringer rolls	15.0	.0415	9.2
After wringer rolls	14.9	.0400	12.5
After last primary	20.6	.0383	16.2
After 1st main press	31.1	.0388	15.1
After last calender	95.0	.0281	38.5

It will be noticed that the extractor increased the consistency of the sheet from 12.9 per cent to that of 15.5 per cent and compressed the thickness only 6.1 per cent.

When it is considered that the sheet is in its wettest condition in going through the extractor, it is remarkable to know how little compression takes place at this point. It will be noted that the total compression of the sheet is 38½ per cent when wound up on the reel. These figures in showing that the sheet is deformed such a small amount as it goes through the extractor, explains why the sheet does not crush or blow when white water is being pressed out in this position.

Knowing that the proof of the pudding is in the eating, the following are some interesting results obtained in some typical installations:

Mill A

A machine was running 320 feet per minute on test liner. By the middle of the week, they would slow back to 280 feet per minute because of the condition of the top felt. After the extractor was installed, the machine now runs continuously at 320 feet per minute. The top felt no longer picks and stays cleaner. A saving was effected also in the furnish of the liner because the test became more uniform clear across the sheet. Incidentally, the Superintendent of this mill says that he would not operate a board machine without an extractor.

Mill B

Another mill making test liner took the trouble to find exactly how much steam they were able to have with the extractor. They ran at a given rate of speed with the extractor up and measured the condensate from the driers. They then lowered the extractor and weighted same and measured the condensate again. The saving in steam was found to be 31,360 pounds of steam in 24 hours. In money this means a saving of 12c to 15c per ton of finished board.

Mill C

A machine making patent coated and combination boards, a suction turning roll was replaced by an extractor which meant the saving of 25 H. P. Used by the vacuum pump, the average speed was increased 17½ per cent and the sheet went 1 per cent drier into the driers. Two sets of primary presses and two sets of wringer rolls were removed. Results from this unit—induced this corporation to purchase six more.

Mill D

A machine 74 inches wide, making bristol milk cap and specialties, found that with the installation of an extractor, they eliminated crushing and checking on heavier boards. The tonnage was increased on an average of 1½ tons per day. On a match board that they were making, they found that the bulk was increased from 165 lbs. per 1000 square feet to that of 157 lbs. per 1000 square feet.

Mill E

On a 66 inch machine, making post card and bristols, they increased their tonnage on an average of 2¼ tons per day. Not only that, but their finish has been improved considerably.

Mill F

A machine making solid news board, after installing the extractor, found that they could go from light weight to heavy weight without fighting the machine, from two to three hours without crushing and checking in the presses. The life of the top felt stays in a cleaner condition.

We found that the top felt life in all installations has averaged close to 20 per cent in tonnage per felt.

Multiple Unit Installations

Thanks to our friends who have been using single extractors, we have been encouraged to go a step further with this development, and now we are in a position to announce a very decided step forward. Mr. Lockwood of the Consolidated Paper Company, aided by his assistants, Walter Maull, superintendent, and W. H. Kimball, technical director, invited us to participate with them in some experiments to determine the feasibility of usng more than one extractor on a machine. As a result of these tests, three extractors were put on their machine 6-B.

Changes in the Machine

It is easy to realize that the cylinder machine in production is not one of the easiest things to experiment with. After a long period of painstaking efforts, a development has been brought to a point as shown in this sketch. (Show slide of Consolidated machine before and slide after changes made.) In brief, the machine has had the following physical changes made to it:

The first main press now operates bare. The top felt has been changed in length from 161 feet to 80 feet. This felt is conditioned by a pair of squeeze rolls, suction box and showers. An interesting thing to note is that it has no whipper.

The last extractor unit is unusual, because of its very heavy construction, made to withstand high nip pressures. The roll on top is a regular 22-inch diameter cast iron press roll with a hard rubber covering. A total load of 25,000 pounds has been carried by this unit. This is the equivalent of over 200 pounds per inch of nip. It has been proven that the more an extractor can be weighted in this position, the more white water can be removed. It is interesting to note that this high nip pressure has neither marked nor upset the formation of high grade boards. By removing additional amounts of water at this point, allows the use of shorter top felts. This felt remains clean without the drastic action of a whipper.

Tonnage Increased

In checking various runs on this machine, it has been found possible to increase the average tonnage 25 per cent. The short top felt has been kept in use for at least 20 per cent more tonnage than the longer felts. In one week's run, boards were made to caliper from .018 to .038 in thickness, and the grades were from chip to patent coated boards. During the entire run not a weight was changed on the whole machine. The machine was merely speeded up or slowed down for the proper caliper and the furnish changed for each kind of board. This demonstrates how safely such a hook-up can be operated.

On a great many machines bare first presses give a lot of trouble, especially on so-called faster machines. This can be overcome with such an installation as this and higher finishes can be imparted to the board.

Some New Possibilities Opened Up

At the present time we have two double units in operation on machines running in the standard manner. We also have an installation with two extractors where the board machine runs in the opposite direction to that found in most mills. From these results it may be safely said that the extractor has opened up some new possibilities in cylinder machine design.

Norwegian Pulp Production

[FROM OUR REGULAR CORRESPONDENT]

Washington, D. C., June 8,1932.—Wood pulp production by Norwegian mills during the month of April comprised 13,800 metric tons of bleached sulphite, 11,410 tons of unbleached sulphite, 1,670 tons of sulphate, and 38,693 tons of groundwood. Production of all except ground wood was negligible during the corresponding month of last year on account of the strike.

WOOD PULP
AGENTS

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Knowledge today is more necessary than ever before.

POCKET SCALES

Gives accurate basis weight by weighing a 2x4" sample. Most practical for buyers and sellers for comparison of weights of envelopes, folders, letterheads and all small forms.

POCKET MICROMETERS

Vest pocket size. From thinnest papers to heaviest boards. Each reading 1/1000". Most paper men carry one. Do you?

Paper Testers for every required test.

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Largest line of Standard Testers

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GLENS FALLS, N. Y.

Manufacturers of

IMPROVED ROGERS AND SPECIAL WET MACHINES

STANDARD WET MACHINES

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GLENS FALLS DECKER AND DECKER WASHER

GLENS FALLS ROTARY SULPHUR BURNER

PULP GRINDERS, THREE OR FOUR POCKET (Roller Bearings)

Ask us about the
OLIVER-ROGERS WET MACHINE

RAY SMYTHE, 301 PARK BLDG., PORTLAND, ORE.
Western Representative

EXTENSION MODEL

Cambridge Surface Pyrometer

is an instrument which applied to the surface of a dryer or calender roll, instantly indicates the exact surface temperature. Its use enables the operator to locate water logged rolls and to maintain every roll at the correct temperature for efficient progressive drying.

The instrument is compact, rugged and easy to read. The extension rod permits temperature checking across the entire roll. Scale ranges are 50-250° and 50-400° F.

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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 4, 1932

CIGARETTE PAPER

American Tobacco Co., Rochambeau Havre, 230 cs.; Standard Products Co., Rochambeau Havre, 39 cs.; Standard Products Co., Ile de France, Havre, 149 cs.; Champagne Paper Corp., Ile de France, Havre, 30 cs.; American Tobacco Co., Ile de France, Havre, 180 cs.; Chase National Bank, Saturnia, Trieste, 7 cs.

WALL PAPER

A. L. Diament & Co., Majestic, Southhampton, 2 cs.; R. F. Downing & Co., Majestic, Southampton, 5 cs.; Guaranty Trust Co., New York, Hamburg, 12 cs.

PAPER HANGINGS

Davies Turner & Co., Ile de France, Havre, 1 cs.; Whiting & Patterson Co. Inc., Majestic, Southampton, 1 cs

NEWS PRINT

Jay Madden Corp., Gen. von Steuben, Bremen, 570 rolls; Perkins Goodwin & Co., Gen. von Steuben, Bremen, 496 rolls; W. H. Bell, Markland Liverpool, N. S., 4341 rolls; Lunham & Reeve, Kungsholm, Gothenburg, 182 rolls.

PRINTING PAPER

J. E. Bernard & Co., Sacandaga, Rotterdam, 130 rolls.

WRAPPING PAPER

E. Dietzgen & Co., Sacandaga, Rotterdam, 17 cs.; Chase National Bank, Kungsholm, Gothenburg, 3390 rolls.

BRISTOL BOARDS

Keuffel & Esser Co., American Trader, London, 3 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Trader, London, 5 cs.; H. Reeve Angel & Co. Inc., Majestic, Southampton, 7 cs.; A. Giese & Son, New York, Hamburg, 10 bls.

FILTER MASSE

J. Manheimer, Leviathan, Bremen, 30 bls.

BARYTA COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 21 cs.

SURFACE COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 3 cs.; Gevaert Co. of America, Westernland, Antwerp, 51 cs.; International F'd'g Co., New York, Hamburg, 3 cs.; Phoenix Shipping Co., New York, Hamburg, 1 cs.

METAL COATED PAPER

J. J. Shore & Co., New York, Hamburg, 18 cs.; K. Pauli Co., New York, Hamburg, 3 cs.; Rohner Gehrig & Co., New York, Hamburg, 1 cs.; Taub Hummell & Schnall, New York, Hamburg, 5 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Carinthia, Liverpool, 5 cs. (duplex); 11 cs. (simplex); C. W. Sellers, Leviathan, Bremen, 6 cs.; C. W. Sellers, New York, Hamburg, 2 cs.

TISSUE PAPER

Meadows Wye & Co., Carinthia, Liverpool, 3 cs.; ——, Majestic, Southampton, 2 cs.; W. J. Byrnes, Acquitania, Southampton, 2 cs.

COLORED PAPER

E. Henningson & Co., Gen. von Steuben, Bremen, 2 bls.; F. Murray Hill Co., Pres. Harding, Hamburg, 3 cs.; J. J. Shore & Co., New York, Hamburg, 3 cs.

PARCHMENT PAPER

International Accep. Bank, Gen. von Steuben, Bremen, 6 cs.; Globe Shipping Co., New York, Hamburg, 2 cs.

VENEER PAPER

R. F. Downing & Co., Tai Shan, Yokohama, 5 cs.

CARD BOARD

Gevaert Co. of America, Westernland, Antwerp, 4 cs.; American Express Co., New York, Hamburg, 210 cs.

PASTE BOARD

——, New York, Hamburg, 13 cs.

RAW CARD

F. C. Strype, Gen. von Steuben, Bremen, 1 cs.

MISCELLANEOUS PAPERS

Keller Dorian Paper Co., Rochambeau, Havre, 3 cs.; Henschel Naeve & Co., Gen. von Steuben, Bremen, 3 cs.; J. B. Mast & Co., Westernland, Antwerp, 8 cs.; Keller Dorian Paper Co., Ile de France, Havre, 8 cs.; Japan Paper Co., Ile de France, Havre, 9 cs.; G. Lueders & Co., Ile de France, Havre, 2cs.;——, Majestic, Southampton, 5 cs.; C. L. Voorhees, Tai Shan, Yokohama, 4 cs.; Japan Paper Co., Tai Shan, Kobe, 25 cs.; The Borregaard Co. Inc., Kungsholm, Gothenburg, 132 rolls, 27 bls.; Kraemer & Co., Kungsholm, Gothenburg, 124 bls.; Blauvelt Wiley Paper Manfg Co., Kungsholm, Gothenburg, 48 rolls; P. J. Schweitzer, Excalibur, Marseilles, 15 cs.; Yvars & Casasim Inc., Estrella, Alicante, 5 cs.; Public National Bank, Estrella, Marseilles, 5 cs.; Corn Exchange Bank, Kwansi Maru, Osaka, 4 cs.

(Continued on page 70)

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
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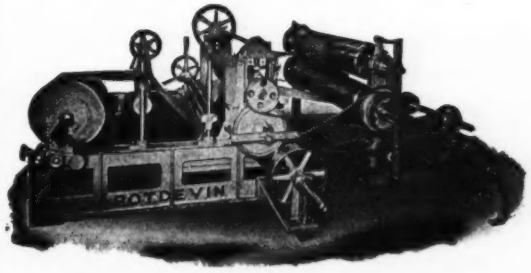

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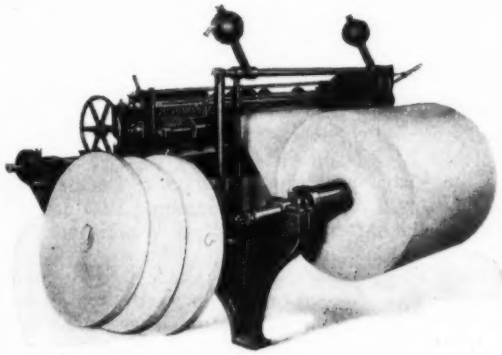

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Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.

With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1" wide and 48" diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1" width and up. Made in three widths: 48"—60"—72".

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Manufacturers of
AUTOMATIC MACHINERY FOR PAPER BOXES AND ROTARY PAPER CUTTING MACHINERY

RAGS, BAGGINGS, ETC.

Bank of New York Trust Co., Estrella, Barcelona, 74 bls. tares, 91 bls, bagging; E. J. Keller Co. Inc., Sacandaga, ——, 78 bls. rags; E. J. Keller Co. Inc., Guido, ——, 516 bls. flax waste; E. J. Keller Co. Inc., West Arrow, ——, 247 bls, bagging.

GLUE STOCK

——, H. Jaspar, Antwerp, 75 bags.

HIDE GLUE

——, New York, Hamburg, 200 bags.

OLD ROPE

International Purchasing Co., Excalibur, Genoa, 171 coils; ——, Pres. Harding, Hamburg, 41 coils; E. J. Keller Co. Inc., Cabo Mayer, ——, 167 coils.

WOOD PULP

Gottesman & Co. Inc., Kungsholm, Gothenburg, 600 bls. sulphite; G. S. Kerr Co., Dago Shippegan, N. B., 1200 cords pulpwood; Castle & Overton, Inc., Pres. Harding. Hamburg, 310 bls. wood pulp, 56 tons; Castle & Overton, Inc., New York, Hamburg, 280 bls, Wood pulp, 56 tons.

WOOD PULP BOARDS

Lagerloef Trading Co., New York, Hamburg, 33 rolls, 11 tons, 33 bls, 5 tons.

WOOD FLOUR

Innes Speiden & Co., Kungsholm, Gothenburg, 363 bags.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 4, 1932

Chase National Bank, Toba Maru, Osaka, 80 bls, rags; ——, Iserholm, Bremen, 500 bls, mechanical pulp; J. Andersen & Co., Iserholm, Bremen, 275 bls. wood pulp; Jay Madden Corp., Iserholm, Bremen, 60 cs. tissue paper; Spaulding & Tewksbury, Iserholm, Hamburg, 134 bls. wood pulp, 26 tons; Castle & Overton, Inc., Iserholm, Hamburg, 2200 bls. wood pulp, 440 tons; ——, Iserholm, Hamburg, 478 rolls news print; Johaneson Wales & Sparre, Inc., Iserholm, Hamburg, 170 bls. sulphite, 25 tons; Laboratory Glassware Corp., Iserholm, Hamburg, 8 cs. filter paper; Lancaster News, Iserholm, Hamburg, 141 rolls news print; Belgam Corp., Kwansi Maru, Kobe, 50 bls. rags; Union Waste Co., Kwansi Maru, Kobe, 25 bls. rags; American Over-Ocean Corp., Kwansi Maru, Kobe, 43 bls. rags; Hoffman Lion Mills, Kwansi Maru, Kobe, 45 bls. rags; E. J. Keller Co. Inc., Excelsior, ——, 210 bls. rags; E. J. Keller Co. Inc., Riol, ——, 354 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING JUNE 4, 1932

S. Shapiro & Son, Tai Shan, Yokohama, 251 bls. rags; Parsons & Whittemore, Inc., C. of Havre, ——, 250 bls. sulphite.

PORTLAND IMPORTS

WEEK ENDING JUNE 4, 1932

Parsons & Whittemore, Inc., Topdalsfjord, ——, 300 bls. sulphite.

NEW ORLEANS IMPORTS

WEEK ENDING JUNE 4, 1932

Gottesman & Co. Inc., Stureholm, Sweden, 250 bls. wood pulp.

MONTREAL IMPORTS

WEEK ENDING JUNE 4, 1932

Gottesman & Co. Inc., Vasaholm, Sweden, 2625 bls wood pulp.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 6, 1932—Le Roy P. Cheever, formerly with Whiting, Patterson & Supple, has become a member of the Storrs & Bement Company organization. He will give his attention principally to the sale of fancy papers, including box coverings.

At a sales meeting of the Storrs & Bement Company, held Saturday morning, Charles E. Demaree, of the Eastern Specialties Company, spoke in regard to roll paper specialties made by his firm. Storrs & Bement have become distributors of the Eastern Specialties Company lines.

F. Bendel Tracy, head of the Fort Hill Paper Company, and second vice-president of the Boston Paper Trade Association, recently sailed for Europe on the *Europa*, accompanied by Mrs. Tracy.

Rumors that the United Paperboard Company is to discontinue its New England office are without foundation.

Charles W. Fields, treasurer of the Baird & Bartlett Company, accompanied by Mrs. Fields, was in Bath, N. H., over the holiday, and while there caught a good string of brook trout.

The Globe Paper Company, Inc., has filed an involuntary petition in bankruptcy.

Whiting Settled Out of Court

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., June 7, 1932—The suit brought by Robert F. Marden and John H. Murphy of Lowell against William F. Whiting, Whiting & Co. Inc., and Edward C. Whiting for alleged services relative to the sales of the Lyman Mills property to the Whitings was settled out of court Friday at Cambridge where the case had been on trial several days before Judge Henry T. Lummus.

The jury in the case decided that there had been a legal agreement between the plaintiffs and the corporation but not between the plaintiffs and the individuals sued. The amount of the settlement was not made public but was stated to be "substantial."

Tissue Men Meet at Utica

UTICA, N. Y., June 4, 1932—Tissue paper manufacturers from all sections of the country held a meeting here last week in an endeavor to form a definite trade policy. Virtually all those who attended the conference are members of the Tissue Paper Manufacturers Association. Herbert Thwaite, general manager of the organization, presided.

During the meeting trade trends were the subject of much discussion and plans for summer business were made. It was announced that another meeting will be held here within a few weeks.

To Represent Gummed Products Co.

The Gummed Products Company of Troy, Ohio, announces that R. F. Godwin formerly district sales manager of the Richardson Paper Company, Lockland, Cincinnati, Ohio, will represent the Gummed Products Company with headquarters at 111 West Washington street, Chicago.

Frederick F. Williams formerly sales promotion manager of the Frigidaire Corporation, will represent the Gummed Products Company in our Cleveland territory and his present headquarters will be 123 West Main street, Norwalk, Ohio.

ALLIGATOR
TRADE MARK REG. U.S. PAT. OFFICE
STEEL BELT LACING
NEARLY a thousand belts per hour are laced with Alligator Steel Belt Lacing, day in day out, year in year out. Easy, rapid application with a hammer as the only tool; the hammer-clinched, vise-like grip on the belt ends, preventing friction of the plies; the patented, sectional, steel rocker pin which absorbs friction in the hinged joint; the great surplus of strength and long service—only Alligator Steel Belt Lacing combines these features which make it the choice of millions of belt users. Smooth on both sides. Easily separable. Reliable both on light and heavy duty drives. Eleven sizes. Made also in Monel Metal. Sold at wholesale and retail throughout the world.
FLEXIBLE
STEEL LACING CO.
4689 Lexington Street, Chicago
JUST A HAMMER TO APPLY IT

XCEM No. 70 SLIME REMOVER

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Specially Developed for the Requirements of

PAPER MILLS

A Bulletin containing detailed instructions regarding the use of XCEM #70 Slime Remover and XCEM Felt Soap is yours for the asking.

This organization also specializes in the production of special cleaning compounds for individual needs. We invite your inquiry.

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Warehouses in Principal Cities **Representatives Everywhere**
IN THE UNITED STATES and CANADA

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A FIRST REQUISITE

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Large Production
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Prompt Deliveries
Purity 99½%

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The B. Q. QUALITY PULPS

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Bleached Sulphite

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Extra Strong Kraft

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Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company

Incorporated

200 FIFTH AVENUE NEW YORK, N. Y.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 8, 1932.

Conditions in the local paper market during the past week were practically unchanged. Demand for the various standard grades of paper is only moderately active and the bulk of the business transacted consists of small orders for immediate requirements. Prices are generally holding to previously quoted levels.

Production of news print paper is being maintained at approximately 55 per cent of capacity and offerings are large enough to take care of current needs. Signs of increased consumption in the near future are wanting at present. Efforts are still being made by the leading interests to stabilize the industry, but progress is slow.

The paper board market is only moderately active. Box board operations are curtailed and offerings are not excessive, but the price situation continues unsatisfactory. The fine paper market is irregular. Tissues are going forward in fair volume. The coarse paper market is exhibiting a strong undertone and kraft wrapping paper quotations are well maintained.

Mechanical Pulp

Trading in the ground wood market is light. The statistical position of the mechanical pulp industry is sound, as the output is still curtailed, both in this country and abroad. Shipments against contract are moving in a fairly regular manner. Prices are steady and unchanged and there is little talk of concessions around.

Chemical Pulp

Some improvement was noticed in the tone of the chemical pulp market. Due to some extent to the continuation of the Swedish pulp mill workers strike, the industry is steadier than for some time past. Bleached sulphite and kraft pulp, in particular, are displaying greater strength. Prices are holding to schedule, in most instances.

Old Rope and Bagging

The old rope market is decidedly quiet. Demand for both domestic and imported old manila rope is restricted, while small mixed rope is only moving slowly. Prices are holding up fairly well, however. The bagging market is easier. Foreign gunny bagging No. 1 is now offered at from 1.00 to 1.10, f.o.b. New York. Other grades are spotty.

Rags

Demand for the various grades of domestic rags is listless. Quotations on cotton cuttings are softer. New white No. 1 shirt cuttings are now quoted at from 4.00 to 4.35; New White No. 2 at from 3.00 to 3.25; Blue overalls at from 3.00 to 3.50; Washables at from 1.15 to 1.40; and O. D. Khaki cuttings at from 3.00 to 3.25, f.o.b. New York.

Waste Paper

Board mill demand for the lower grades of paper stock has fallen off, for the time being, and quotations are easier. Strictly folded news is now selling at from .25 to .30; and No. 1 mixed paper at from .15 to .20, f.o.b., New York. At the same time, offerings are reported to be limited and prices should become firmer in the event of any increased request in the future.

Twine

No radical changes were reported in the local twine market. As for some considerable time past, most of the business transacted was along routine lines. Supplies are said to be moving into consumption in moderate volume for the time of year. Competition for desirable orders continues intense and there are occasional reports of shading.

Bleached Flax Pulp Popular

In the Romance of Paper Making there has never been any fiber in richness of quality and durability to take the place of linen. It has been used for thousands of years as a basis for all high grade papers and its particular structure gives it hardness and strength which it carries with it into the finished product, whether it be pulp, paper or cloth. Even drastic treatment does not destroy its strength, and its durability has been proven in records centuries old.

In these days of high production the manufacturers cannot give the necessary time to treating the flax fiber so as to make its use practicable and have more or less depended on linen rags. The cost of gathering, preparing and treatment of linen rags as well as flax fiber has been a big handicap and has kept linen paper expensive as well as exclusive. It has long been the aim of manufacturers to produce genuine linen papers that will meet the most exacting demands and still be low enough in cost to again come into general use.

One of the largest flax spinning mills abroad, J. Lemaire Destombes & Cie, St. Andre, Nord, France, realizing the importance of linen stocks as a raw material for high grade papers, have perfected a half stock which tests 100 per cent rag, at a very low cost. Their expert knowledge of the fiber from the field and its subsequent processing has been the means of their success in producing a bleached flax pulp suitable for use in a diversified line of high grade papers both here and abroad.

The careful treatment that they give the new flax fiber that is used in their pulp, dusting, cooking, washing, beating and bleaching leaves nothing more to be desired in a high grade half stock of this character. Their up to date equipment, including an adjoining plant for the manufacture of their own liquid chlorine and close chemical control of their several operations, has insured a product of very uniform quality.

This bleached flax pulp was introduced several years ago in this country and Canada by Daniel M. Hicks, Inc., of New York, the sole agent, and its popularity, new low cost, and general adaptability has made it more attractive to the old customers and is steadily converting others to its use so that today its clientele is greater than in any year previous.

Congratulations

to the

Superintendents

on their very fine meeting at Buffalo

Instructive meetings like this one have always proved beneficial to the Paper Industry.

HELLER & MERZ CORPORATION

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THE Standard Purity of this Company's product is maintained in an uncompromising degree, regardless of whether successive deliveries are from one or various of the Company's Works.

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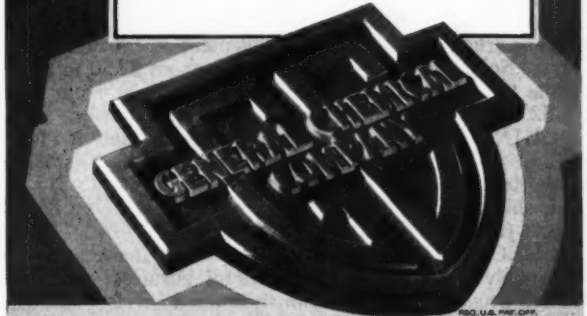

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 8, 1932.

BLANC FIXE.—Most of the business transacted in the blanc fixe market during the past week was routine. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is only moderately active at present. Contract shipments are moving slowly. Prices are holding to schedule, in most instances. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—Demand for casein is light. Domestic standard ground is still quoted at 5 cents and finely ground at 7 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags. car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The contract movement is fairly satisfactory. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is fairly steady. Shipments against contract are moving regularly. Imported china clay is still quoted at from $11 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Trading in the chlorine market is comparatively active considering general business conditions. Prices are holding to previously quoted levels. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is easier. Grades of gum rosin used in the paper mills are now quoted at from $3.35 to $3.70 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Some improvement is noticed in the salt cake market. Prices are generally well maintained. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contract shipments are going forward at a fairly steady pace. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Conditions in the local starch market remain unchanged. Demand for this product is fairly persistent and prices are steady. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is practically unchanged. Prices are generally holding to schedule. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 in lots of 100 pounds, packed in barrels, at the works.

SULPHUR.—The sulphur market is marking time. Sulphur is quoted at $18 per long ton, on order of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Paper mill demand for talc is mostly seasonal. Supplies are going forward in fairly good volume. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —
(Delivered New York)		
News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	24.00	@25.00
Straw	34.50	@45.00
Chip	24.00	@25.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	30.00	@32.50
Sgl. Mla. Lt. Chip.	35.00	@37.50
(F. o. b. Mill)		
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp
(On Dock)

No. 1 Imported—		
Moist	20.00	@22.00
Dry	22.00	@24.00
(F. o. b. Mill)		
No. 1 Domestic	18.00	@24.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.50	@ 1.65
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15
(F. o. b. Pulp Mill)		
Sulphite (Domestic and Canadian)—		
Bleached	2.10	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.50	@ 2.75
(Delivered Paper Mills)		
Soda Bleached	2.50	@ —

Domestic Rags
New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.00	@ 4.25
New White, No. 2	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags
New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.75	@ 5.00
New Light Oxfords	4.00	@ 4.25
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers
(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.00	@ 2.15
Hard, white, No. 2	1.40	@ 1.50
Soft, white, No. 1	1.35	@ 1.45
White envelope cuttings	1.60	@ 1.70
Flat Stock—		
Stitchless	.65	@ .75
Overissue Mag.	.65	@ .75
Solid Flat Book	.55	@ .60
Crumpled No. 1	.40	@ .45
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.60	@ .70
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.30	@ 1.40
New Cuttings	1.05	@ 1.15
Extra No. 1 old	.90	@ 1.00
Print	.40	@ .45
Bogus Wrapper	.40	@ .45
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.75	@ .85
News—		
No. 1 White News	1.25	@ 1.35
Strictly Overissue	.35	@ .45
Strictly Folded	.25	@ .30
No. 1 Mixed Paper	.15	@ .20

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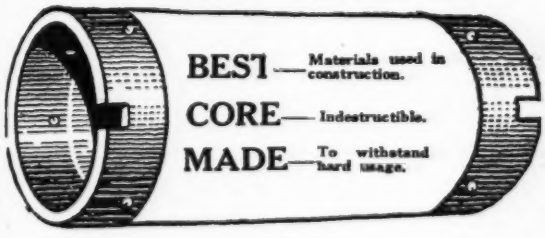

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HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 pl—			
No. 1	.15½	@	.16½
No. 2	11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine Balls	.08¾	@	.10¾
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.40	@	1.45
Ledger & Writings	.55	@	.65
Solid Books	.50	@	.55
Blanks	1.15	@	1.20
Krafts	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.45	@	.50
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¼	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	30.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.05	@	.05½
New Whitie, No. 2	.04	@	.04¼
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04¼	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.90	@	2.00
No. 2 Hard White	1.75	@	1.80
No. 1 Soft White	1.60	@	1.70
No. 2 Soft White	1.40	@	1.50
No. 1 Mixed	.45	@	.55
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.90	@	1.00
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Rinders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.40	@	.45
Old Newspaper	.20	@	.25

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls.009	—	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.35
No. 1 Old Manila	.65	@	.75
No. 1 Mixed Paper	—	@	.15
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.20	@	1.30
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	—	@	.17½
Print Manila	.35	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.55	@	1.75
Transmission Rope	1.00	@	—
Mixed String	—	@	—
Jute Rope	—	@	.32½
Jute Carpet Threads	.25	@	.85
Bleachery Burlap	1.75	@	.30
Scrap Burlap	—	@	2.00
No. 1 Scrap Burlap	.80	@	.60
Scrap Sisal	.75	@	.90
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	1.00
New Burlap Cutting	1.00	@	.65
Australian Wool Pouches	—	@	—
Heavy Baling Bagging	1.00	@	1.50
Paper Mill Bagging	.60	@	1.25
Bagging No. 2	.30	@	.70
No. 1 Burlap	2.75	@	.35

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	3.00
New White No. 1	.04½	@	.01½
New White No. 2	.03	@	.04¾
Silesias No. 1	—	@	.03¾
New Black Silesias	.02½	@	.03
New Unbleached	.04½	@	.04¾
Fancy	—	@	.05¼
Washable	—	@	.02½
Cottons—According to grades—			
Blue Overalls	—	@	.01¾
New Black, sott	.04	@	.03¾
Khaki Cuttings	.03	@	.04½
O. D. Khaki	.03½	@	.03½
Corduroy	.02¾	@	.03¾
New Canvas	—	@	.03
B.V.D. Cuttings	.04	@	.05

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	1.00	@	1.12½
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.53	@	.58
No. 2	.43	@	.48
No. 3	.43	@	.48

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.60	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	—	@	1.00
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10½	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—
(Delivered Toronto)			
News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

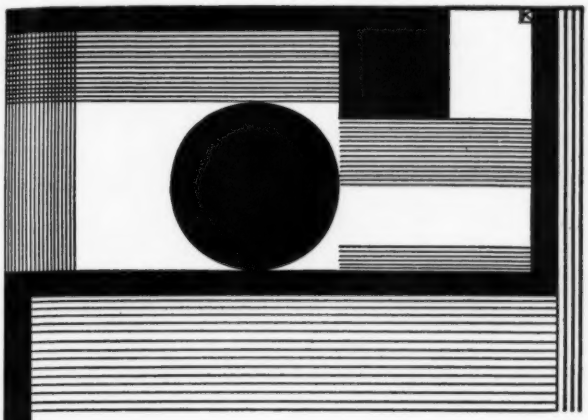
Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¾



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PAPER TRADE JOURNAL
ESTABLISHED 1872

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TABLE OF CONTENTS

Copyright, 1932, by the Lockwood Trade Journal Co., Inc.

Setback for News Print Amalgamation 9
New Tariff on Lumber 9
Paper Demand Seasonal in Philadelphia 10
Strike at Kieckhefer Container Mills 10
Tissue Paper Investigation 10
Glazed and Fancy Paper Men Meet 11
B. A. Van Winkle Resigns as Manager 11
Toronto Market Moderately Active 12
Hydro as Partner for Abitibi 12
Boston Paper Market Conditions 13
Log Drive on Hudson Under Way 13
Status of Wisconsin Paper Industry 14
Pulp Mill Destroyed by Fire 14
Charged with Depressing Prices 15
Herman Scott Chalfant Inc. Expands 15
Chicago Market Marking Time 16
Big Order for St. Regis 16
Boston Paper Trade Holds Outing 17
New York Trade Jottings 18
Hear Evidence in Casein Tariff 19
Indianapolis Demand Holds Up 19
Construction News 20
New Rain-Proof Paper Umbrella 22
Editorial **24**
TAPPI Notes 25
New TAPPI Members 25
Awards for Government Paper 25
Technical Section
Pulp and Paper Industry Literature Review ... 27
The Volumetric Composition of Paper 31
Training Technical Men at the Institute 33
Developments in the Preparation of Non-Fibrous Materials 36
Cost Section **39**
St. Regis Paper Co. Wins Verdict 40
Vacuum Pumps in the Paper Industry 41
Imports of Paper and Paper Stock 43
New York Market Review **46**
Miscellaneous Markets **48**
Market Quotations **48**

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Want and For Sale Advertisements, 51-52

Get all the Cushion you pay for . . . Don't take a *Hard Rubber Base*

NO HARD RUBBER *base in this roll. Its cover is live rubber clear down to the metal core. It's a Goodrich roll, covered by the Vulcalock process, which bonds soft rubber directly to metal with an adhesion in excess of 500 pounds to the square inch. Specify Vulcalock rolls and you get 100% live cushion.*

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Then Goodrich developed the Vulcalock process which insures a practically inseparable bond between rubber cushion and metal core—with no *intervening layer of hard rubber*.

Say you're buying a roll with a 1″ cushion. No longer need you accept one of the old-time rolls with a dead rubber base about ¼″ thick. Specify Goodrich Vulcalock, and you get a roll that gives you one hundred cents' worth of rubber cushion for every dollar spent.

The old-fashioned roll cheats you out of one-quarter of the cushion you pay for. You lose again when it's time to re-cover. The metal core has to be re-rough-threaded. There's loss of metal that has to be made good by thickening the rubber cover. Every time the roll is re-covered, you pay for a thicker cover.

In quality as well as quantity of cushioning, you get a better buy in a Vulcalock roll. Unlike the makers of hard rubber base rolls, we don't have to worry about vulcanizing two kinds of rubber at the same time. We can compound a rubber cover *exactly* to meet your needs.

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